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**CULTURAL RESOURCES INVESTIGATIONS OF THE
WEST BANK HURRICANE PROTECTION PROJECT,
JEFFERSON PARISH, LOUISIANA**

September 1989

FINAL REPORT

**R. Christopher Goodwin & Associates, Inc.
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PREPARED FOR:

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<p>During February and March, 1989, a cultural resources survey of the V-levee segment of the West Bank Hurricane Protection Project, Jefferson Parish, Louisiana was conducted. An intensive pedestrian survey and shovel testing regime was done within the project corridor, an area of 345 acres.</p> <p>Two archeological sites, two landscape features, and three modern refuse loci are located within the surveyed area. Brown's Sawmill (16JE217) is the remains of a mid-twentieth century sawmill. It is less than 50 years old, and it is not eligible for inclusion in the National Register; no further testing is recommended. Site 16JE218 consists of an intact shell midden adjacent to Bayou des Familles. Site 16JE218 is a significant site. The first landscape feature is a series of ten agricultural drainage ditches, and a small protection levee, associated with the 1867 - 1875 cultivation of sugarcane within Carter Plantation. The other is a segment of the eighteenth and early nineteenth century Barataria Road. Finally, three loci of modern refuse were identified. Neither the landscape features nor the modern refuse loci are significant cultural resources; no further work is recommended at them.</p>					
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DEPARTMENT OF THE ARMY

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NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

August 30, 1989

Planning Division
Environmental Analysis Branch

To The Reader:

The investigation reported in this volume was funded and guided by the U.S. Army Corps of Engineers, New Orleans District. The work was performed to provide information needed to assess cultural resource impacts which could result from construction of part of the West Bank Hurricane Protection Project.

We agree with the report's identification of the V Levee Site (16JE218) as a potentially significant archeological site. The report's recommendations for additional work there are well conceived. However, as of the time this letter was written, the Project has been redesigned in a way that avoids impact to the V Levee Site. The redesign substitutes a floodwall for a reach of levee and was adopted for a variety of reasons, including the wish to miss the archeological site. Accordingly, it does not now appear that the recommended work at the V Levee Site will be instigated by the Army Corps of Engineers.

This report has been reviewed and accepted by the New Orleans District. We commend the Contractor's efforts and careful scholarship.

Van Tries Button
Technical Representative

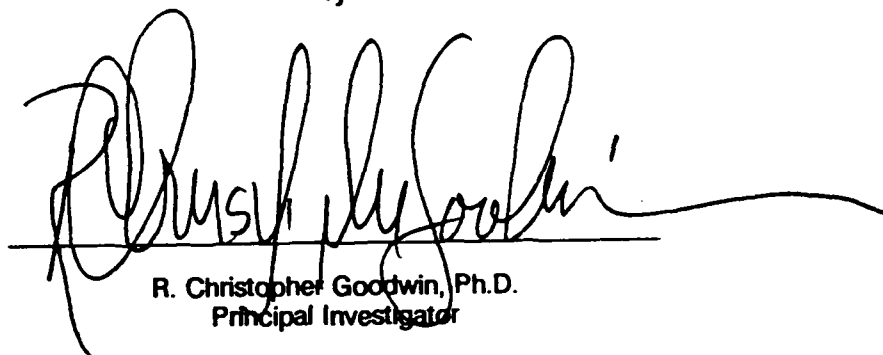
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Chief, Planning Division

CULTURAL RESOURCES INVESTIGATIONS OF THE WEST BANK HURRICANE PROTECTION PROJECT, JEFFERSON PARISH, LOUISIANA

FINAL REPORT

By

A large, stylized handwritten signature in black ink, appearing to read 'R. Christopher Goodwin', is written over a horizontal line. Below the line, the name and title are printed.

R. Christopher Goodwin, Ph.D.
Principal Investigator

With

Stephen Hinks, William P. Athens, Paul C. Armstrong,
Sylvia I. Favret, Jennifer A. Cohen, and James M. Wojtala

R. Christopher Goodwin & Associates, Inc.
5824 Plaque Street
New Orleans, LA 70123

September 1989

For

U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160

Contract No. DACW29-88-D-0121, Delivery Order No. 0004

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CHAPTER I

INTRODUCTION

This report presents the results of a Phase I/II cultural resources survey of a portion of the proposed West Bank Hurricane Protection Project, located on the west (right descending) bank of the Mississippi River, near the north end of the Barataria area in Jefferson Parish, Louisiana (Figure 1). This survey was performed during February and March, 1989, by R. Christopher Goodwin & Associates, Inc., for the U.S. Army Corps of Engineers, New Orleans District, pursuant to Delivery Order 04 of Contract DACW29-88-D-0121.

The proposed West Bank Hurricane Protection Project will include levee enlargement and levee and floodwall construction. The improved levee system will extend southeast from the Westwego area to the V-levee, along the V-levee to the Estelle Pumping Station, and east and north along the Harvey Canal-Bayou Barataria Levee to the Harvey Pumping Station. From there, a floodwall will extend north along Destrehan Avenue, parallel to the Harvey Canal, to the levee at the Harvey Lock. The survey corridor was comprised of three linear transects along the V-levee (southwest, southeast, and east segments) (Figure 1). This levee and floodwall system is designed to protect the urbanized portion of Jefferson Parish between Westwego and the Harvey Canal from flooding.

During this study, the portion of the proposed project area extending from the Estelle Pumping Station south and east along the west and north side of the proposed V-levee to approximately 450 m northwest of LA 45 was examined. The area surveyed was 200 m wide, with the exception of a corridor northwest of LA 45 which was 300 m wide. Survey of this v-shaped area was designed to identify and to inventory all archeological sites and historic standing structures within the project corridor and to evaluate their significance. Archival research focused on the historic development of the area, and on land tenure history. These data were used in interpreting identified archeological sites and in assessing their research potential.

Fieldwork consisted of intensive pedestrian survey and systematic shovel testing of approximately 345 acres. During this survey, one historic site (Brown's Sawmill, 16JE217) and one prehistoric site (16JE218) were identified; two historic landscape features and three modern refuse loci also were recorded. Additional shovel testing and excavation at Site 16JE218 defined both the horizontal and the vertical extent of the site, and established an expected range of artifacts.

Organization of the Report

Chapter II discusses the geomorphological and environmental setting of the project area. Chapter III contains an overview of the prehistory of the Barataria area. Previous archeological investigations near the project area are reviewed in Chapter IV, and previously recorded sites are discussed. The land tenure history of the area is reviewed in Chapter V; Chapter VI examines the research design and field methodology used during this research effort. Chapter VII presents the results of field investigations. The results of laboratory analyses are presented in Chapter VIII. Finally, cultural resources management recommendations are given in Chapter IX.

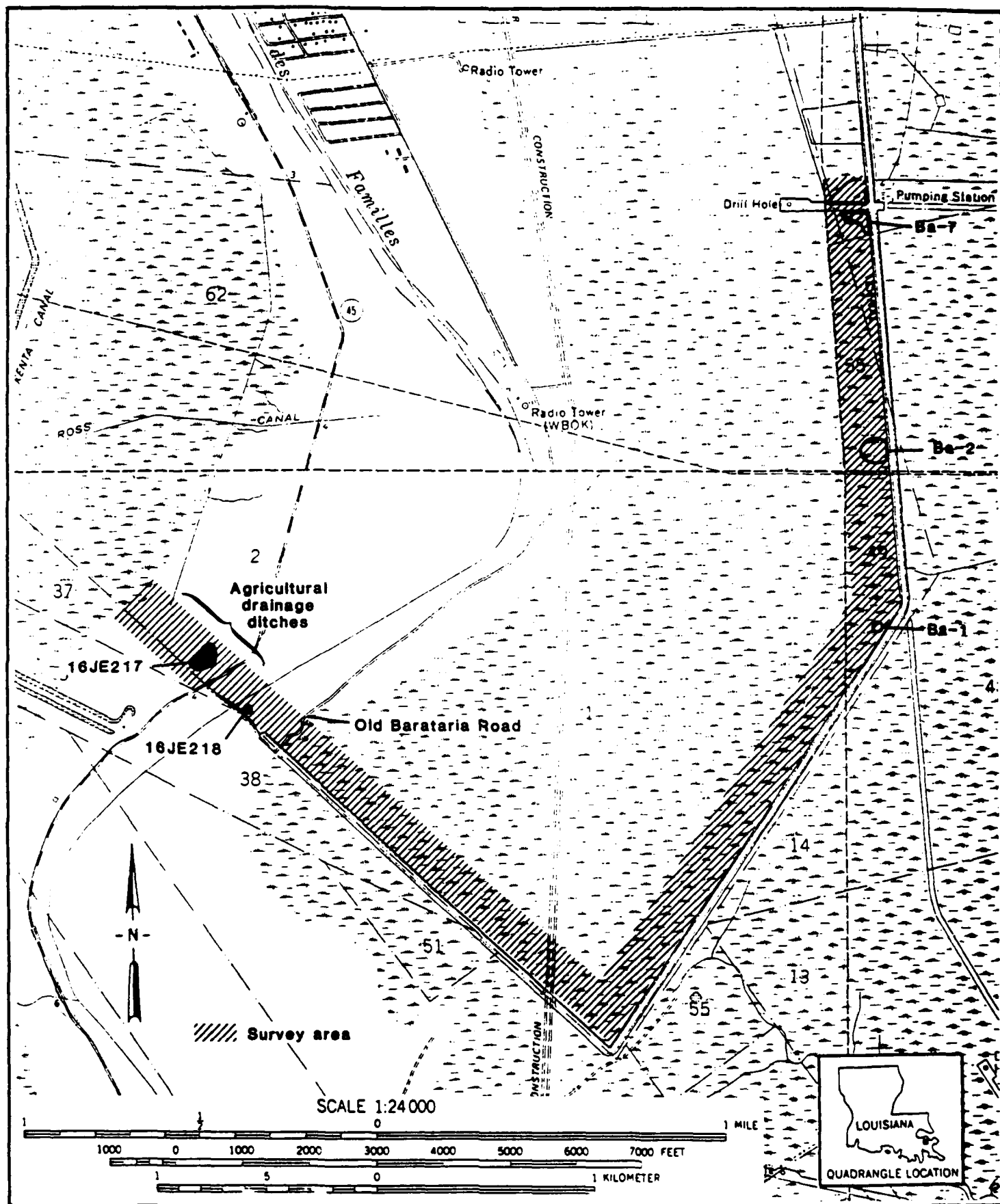


Figure 1. Excerpt from the 1966, photorevised 1972 and 1979, USGS 7.5 minute series topographic quadrangle, Bertrandville, Louisiana, showing the location of the project area, located archeological sites, landscape features, and modern refuse loci.

CHAPTER II

NATURAL SETTING

Introduction to the Barataria Basin

The study area lies within the Barataria Basin of the Mississippi River deltaic plain in southeast Louisiana. The Barataria hydrologic unit is an estuarine intertributary delta basin that is 400,000 hectares in size (Bahr et al. 1983:104). The basin extends north from the Gulf of Mexico approximately to latitude 29°54'N; it extends between longitudes 89°15' and 90°15'W. The length of the basin is approximately 129 km; its widest point occurs between the mouth of Bayou Lafourche and the Balize Delta.

The Barataria hydrologic unit flows southeasterly from the high natural levees to the bayous and streams, descending into a central delta flank depression which eventually drains into the Gulf of Mexico. The expansion of the Mississippi River levee system in the 1930s and the closing in 1904 of the westernmost tributary of the basin, Bayou Lafourche, halted overbank flooding and sediment deposition into the Barataria Basin. As a result, the river no longer influences the basin's hydrologic cycle, making the basin a closed hydrologic unit. Consequently, the only direct fresh water introduced into the Barataria hydrologic unit comes from precipitation (Adams et al. 1976). The tidal passes and barrier islands at the south end of the basin act as balances controlling the amount of tidal water entering and leaving the basin. Fresh water predominates in the north end of the basin; saline water is found to the south. Between the two is a transitional zone where the two extremes mix. This transitional zone has been affected by cultural modifications in the region. The construction of flood control projects curtails active delta formation, resulting in premature degradation. Wetland loss within the Barataria Basin is accelerating and is occurring most frequently in the saline and brackish marshes. The greatest hydrologic alteration appears to be related to canal construction. There are three contributing factors: (1) canals offer a quicker path for runoff to enter water bodies, preventing water from flowing into the basin and saturating the surrounding wetlands; (2) water exchange occurs more rapidly as a result of middle Barataria Basin channel dredging, channel improvements, and new canal construction; and, (3) spoil placement blocks the natural wetland waterflow thereby reducing the deposition of suspended sediments.

Thus, both geological and anthropogenic processes have had significant impact on the ecology of the Barataria Basin. The lack of new sediments, subsidence, and canal and levee construction have accelerated saltwater intrusion and freshwater wetland loss, which, in turn, have altered the plant and animal communities of the area. The natural setting of the Barataria Basin is described below.

Geomorphology of the Barataria Basin

The Barataria Basin is part of the Mississippi River deltaic plain, which consists of a series of lakes, stream channels, levees, swamps, and marshes. These features resulted from a succession of delta building, delta abandonment, and land subsidence activities over the past seven to eight thousand years. The most recent geologic delta formation occurred approximately 6000 - 7000 years ago, as glacial melt waters raised sea levels to their modern levels. With sea levels relatively uniform and constant, the sediment laden Mississippi River deposited its suspended load, shaping the gulfward landscape. The flow of the Mississippi has been diverted several times during the past 5000 years; wherever stream dominance occurred, sediment was deposited, forming a succession of delta lobe complexes. David Frazier (1967) identified five major delta complexes in the Mississippi River deltaic plain. These lobes are the Maringouin (6200 - 7200 Years Before Present), Teche (3900 - 5700 B.P.), St. Bernard (1700 - 4700 B.P.), Lafourche (60 - 3500 B.P.), and Plaquemines (200 - 1000 B.P.). In addition, more than sixteen individual, low-lying, overlapping lobes were active during the same period.

The evolution of a delta lobe commences when a course diversion occurs upstream. As the sediment load of a river is dropped into a relatively shallow stable body of water, subaqueous levee deposits begin to restrict its flow to one or more distributaries (Saucier 1974:12). Loss of stream velocity may occur,

causing the coarser sediments to drop out of suspension and form mouth bar deposits. These in turn cause a stream to bifurcate into two or more distributaries. Further bifurcation occurs as velocity is reduced and secondary mouth bar deposits form in the distributaries. Decreasing stream velocity may force the suspended silt and clay to be deposited ahead of and in between the distributaries, eventually creating intertidal mudflats and shallow bodies of water. The inland areas between the distributaries subsequently develop into fresh water swamps; the natural levees of the distributaries broaden from aggradation, and gradually slope down and outward into the newly created swamp or marsh. Along the seaward margin, brackish and saline marshes develop. Progradation continues until another upstream diversion occurs, developing a new distributary complex in another section of the delta (Frazier 1967).

Abandoned interdistributary channels begin to silt up after they have lost their main water flow. Continual sedimentation ceases and the vertical accumulation of organic debris in the swamps and marshes of an abandoned interdistributary cannot curtail the normal rate of subsidence. This encourages the expansion of the lakes and bays contained in the interdistributary area. Saline intrusion occurs in the inland swamps as marine influences along the seaward margin of an old lobe become stronger. The natural levee system of the abandoned interdistributary then begins to erode and becomes narrower as the seaward portions are lost to subsidence. Over time, the mainland beaches of the lobe may be reworked into barrier islands, but without the addition of sediments, these islands erode away. This sequence is a continuing process which leads to multiple episodes of lobe formation in the course of a delta building complex.

Delta formation began in the Barataria Basin approximately 4700 B.P., as the Mississippi River/Bayou Lafourche lobe matured. Other lobes that influenced the formation of the basin include the Bayou Terre aux Boeufs lobe, which was active from 4100 to 3400 B.P., and the Bayou Terrebonne lobe, active from 3400 to 2100 B.P. These lobes helped to extend the delta further to the southeast. The central part of the delta developed as the Bayou des Familles lobe developed from 3300 to 1800 B.P. (Frazier 1967). Archeological evidence suggests that the lower Barataria Basin, Bayou des Familles lobe, remained active beyond 2000 B.P., possibly until 1800 B.P. (c.f., Gagliano et al. 1979:Plate 4-1).

However, there is some debate whether the Bayou des Familles lobe was a main distributary of the Mississippi River. Gagliano et al. (1979:4-7) suggest that Bayou des Familles may have been one of several major distributaries, while Adams et al. (1976:29) indicate that it may have been the main distributary channel. Nevertheless, the importance of the Bayou des Familles lobe lies in the fact that deposition by the channel created most of the land in the central and lower portions of the Barataria Basin, including the natural levees along Bayou des Familles. The Bayou has silted to its present width of approximately 10 m, a considerable reduction from its original width of circa 100 m (Kelley and Bryant 1986:4).

The next land building phase after the Bayou des Familles lobe became inactive was a brief one. The Bayou Blue lobe formed rapidly between 2000 and 1900 B.P., developing land past the lower margin of the Bayou des Familles lobe. Another deltaic event occurred approximately 1000 years ago: the Mississippi River lobe, which greatly affected the eastern portion of the Barataria Basin, extended land to the southeast, below New Orleans. This lobe is still active. During its initial building period, Bayou Barataria reoccupied the lower Bayou des Familles course (circa 1400 B.P.), bringing water and sediment into the eastern Barataria Basin and maintaining the Bayou des Familles-Barataria delta plain (Frazier 1967:301). Initially, Bayou Barataria formed as a distributary on the course of the modern Mississippi River subsequent to the abandonment of Bayou des Familles.

The final delta building complex for the Barataria Basin involved the Terrebonne and Bayou Lafourche lobe formations, approximately 800 and 300 years ago, respectively. These lobes influenced geomorphological processes on the southwestern side of the Barataria Basin. Active delta formation related to Bayou Lafourche ceased early in the twentieth century.

Climate

The study area is located in the subtropics where weather is greatly influenced by the Gulf of Mexico. Annual precipitation averages 160 cm (Gosselink 1974). The wettest months are April through

September; however, torrential rains are common and any month may experience rainfall. The mean annual temperature is 68° F, with January recording the coldest temperatures and July the warmest (USDA 1983:72). The growing season exceeds 260 days. Tropical storms occur intermittently, occasionally producing hurricanes and storm surges which have a profound effect on the floral, faunal, and human communities within the Barataria Basin.

Soils

The project area consists of three linear segments (Figure 1). The southwest segment of the project area abuts the northeastern boundary of Jean Lafitte National Historical Park. It extends approximately 450 m northwest of LA 45, and nearly 2.5 km southeast of the highway. The southeast segment extends to the northeast for nearly 2.5 km; it intersects with the east segment, which extends approximately 100 m north of the Estelle Pumping Station.

Eleven soil series are represented in the Barataria Basin. The project area is comprised of four soil phases. The western survey tract contains three different soil phases. The area west of LA 45 (Figure 1), consists of soils from the Sharkey clay soil phase. The hardwood bottom forest in this area is supported by soil that is typically dark gray or very dark grayish brown in color, with Munsell colors of 5YR 4/1 and 10YR 4/1 for the dark gray, and 10YR 3/2 for the very dark grayish brown. This clay is strongly acidic. The surface layer, which consists of a silty clay loam, varies in depth, but typically extends approximately 30 cm. The subsoil, a 10YR 4/1 dark gray clay mottled with 10YR 5/6 yellowish brown, beneath 30 cm is a dark gray, mottled, neutral, and moderately alkaline firm clay.

The soils of this survey segment are typical of soils occupying low positions on the natural levees of the Mississippi River and its distributaries. They are slowly permeable, poorly drained, firm mineral soils. These soils respond both to flooding and to draught, although the latter is rare. The water table is controlled in the area by pumps and the available water capacity is high; however, during prolonged periods of dry weather, deep cracking is common. The disappearance of the cracks after precipitation is characteristic of soils with a high shrink-swell capacity.

The composition of Sharkey soils makes them well suited to pasture and woodland uses. If a well-constructed drainage system is employed and fertilizer utilized, these soils become well suited, or moderately well suited, for cultivation. Historically, the study area has not been successful for agricultural pursuits, and it either has been returned to or has remained in forest. The soil is well suited for hardwood tree production; however, wetness may limit equipment use.

Two other soil phases are present in the remaining southwest survey tract: the Commerce silty clay loam soil phase and the Harahan clay (formerly Barbary muck) soil phase. The survey tract adjacent to Bayou des Familles from LA 45 to approximately 100 m southeast of the bayou, demonstrates the Commerce silty clay loam soil phase. The hardwood bottom/palmetto-rich area is supported by soil that typically is dark grayish brown (10YR 4/2) in color, but very dark grayish brown (10YR 3/2) also is common. These soils are slightly acidic and can be fairly deep. The subsoil beneath, a grayish brown (10YR 5/2) neutral silty clay loam, may extend beyond 1.5 m in depth.

These soils are common in intermediate positions on the natural levees of the Mississippi River and its distributaries. They are poorly drained and have moderately slow permeability. The high available water capacity and water table moderate the shrink-swell potential of these soils. Such soils of high mineral content and firm composition are suitable for pasturage, cultivated crops, and woodland. Poor tilth is a problem because the soil is sticky when wet and hard when dry. Grading and surface field ditches help to improve the soils by removing excess surface water. The prehistoric shell midden site (16JE218), located east of Bayou des Familles, is situated on the Commerce silty clay loam soil phase (Figure 1).

Sharkey clay appears again approximately 100 m east of the bayou for approximately 400 m, creating a sharp vegetation contrast with the northwestern survey tract. The area where the Sharkey clay soil phase reoccurs has almost no palmetto growth, whereas the higher Commerce silty clay loam soil phase

area has dense palmetto vegetation. The subdominant tree species also change. Swamp red maple trees are far more common in the Sharkey clay soil phase area, while oaks, elm, and gum trees are more prevalent in the Commerce silty clay loam soil phase. Another transition zone is located southeast of this Sharkey clay area. It consists of Harahan clay supporting a cypress-tupelo swamp vegetation complex. Bald cypress, tupelo, and swamp red maple are prevalent in this drained swamp. Prior to drainage, the soils were characteristic of the Barbary muck soil phase, but since the area has been protected by levees and drained by pumps, it has been reclassified as Harahan clay.

Harahan clays are high in mineral content and firm in composition. Beneath the subsoil layer is a semifluid mineral layer. The surface soil is very dark gray (10YR 3/1) in color and is a medium acid clay in natural areas. Because the area is drained swamp, the soil has a high organic/humus content and is loamy in texture. The subsoil, to a depth of approximately 50 cm, is a dark gray (10YR 4/1), very dark gray (10YR 3/1), and black (10YR 2/1) firm clay. Below this layer is a buried layer of black, slightly acidic clay; logs and stumps are present in the underlying material. The water table is high, and the soil has a very high shrink-swell potential and is very fertile. Subsidence, low strength, and high shrink-swell potential limit the area for development, although accessible areas are suited to pasture and crop usage. As a drained swamp, the area does not exhibit vigorous vegetation growth. Many of the bald cypress are dying, and exposed root systems are brittle and rotting. Plant succession is occurring, with scrub plants (thistle, briar thickets) being subdominant species.

The southeast survey tract is located east of LA 3134 and extends in a northeasterly direction for approximately 2.5 km (Figure 1). More than 50 per cent of this area contains Harahan clay. It also is a drained swamp. The southern portion of the survey tract still retains dense bald cypress vegetation, as well as water tupelo and some swamp red maple. Ferns and briar thickets are noticeable in the understory. Although densely vegetated, there are signs of subsidence and of cypress mortality. Just north of the center of this segment is a 700 m pocket of Allemands muck. The area is an open drained marsh. Several sedges, grasses, and briar thickets dominate.

The Allemands muck drained soil phase occurs in drained fresh water marshes. These poorly drained organic soils typically are black (10YR 2/1) in color. *These extremely acidic surface soils have a deep profile. The slightly acidic subsoil is dark gray in color (10YR 4/1), and consists of a semifluid clay. Some areas are underlain with logs and stumps. When survey was conducted in the winter of 1989, the soil was dry and heavily cracked. Fire had ravaged the area, and in many places the soil still looked burned. The soil was a dry soft humus, almost sandy in composition. Subsidence is quite high for these soils, as is fertility and permeability. Because of the semifluid nature of the underlying mineral material, and due to subsidence of organic material, to high shrink-swell capacity, to low strength, and to flooding during downpours, the area is poorly suited to development, and only moderately well suited to pasture.*

Over 90 per cent of the east survey tract, a nearly 2 km area (Figure 1), is comprised of the Allemands muck drained soil phase. The remaining southern portion is Harahan clay. The area is part of the previously mentioned drained swamp. The only trees occur along canals and abandoned stream banks. Willow, elm, and maple are the dominant species along water features, while elsewhere burnt sedges, grasses, canes, and occasional briar thickets are dominant.

Floral Communities

Favorable climatic conditions and soil fertility yield highly productive and dense vegetation in portions of the Barataria Basin. Several types of natural habitats exist within the area. These include fresh water marsh, brackish-intermediate marsh, saline marsh, cypress-tupelo swamp, intermediate swamp, and hardwood bottoms. There are four distinct environmental zones within the project area: hardwood bottom forest, intermediate swamp, drained cypress-tupelo swamp, and drained fresh water marsh. The distribution and composition of plant communities in the Barataria Basin also is directly related to elevation (White et al. 1983:103); elevational changes of only a few centimeters can affect vegetation patterns.

The westernmost 50-75 meters of the V-levee tract was an intermediate swamp. This area was perhaps the wettest of the surveyed areas. The water table was reached at approximately 5 cm; tree mortality was evident, and logging evidently had thinned the area of the larger trees. Swamp red maple (*Acer rubrum* var. *drummondii*), and wax-myrtle (*Myrica cerifera*) were the dominant tree species in this narrow zone. Subdominant species include: water tupelo (*Nyssa aquatica*), bald cypress (*Taxodium distichum*), water oak (*Quercus nigra* L.), and small American elm (*Ulmus americana*). Several grasses along with smart-weed (*Persicaria punctata*), alligator-weed (*Alternanthera philoxeroides*), and swamp-potato (*Sagittaria lancifolia*), were some of the herbacious ground cover plants.

East of this intermediate swamp is a hardwood bottom forest, located on higher land deposited by Bayou des Familles when it was an active distributary of the Mississippi River. The highest elevations of the survey were found on the natural levees of the Bayou. The elevations of these ridges are approximately one meter NGVD. The hardwood bottom forest extends for approximately 1150 m along the southwestern survey tract, and ends nearly 300 m southeast of the old Barataria road. This ecozone represents roughly 15 per cent of the survey area.

The dominant tree species is the water oak (*Quercus nigra*), with sweet gum (*Liquidambar styraciflua*), hackberry (*Celtis laevigata*), black willow (*Salix nigra*), live oak (*Quercus virginiana*), American elm (*Ulmus americana*), and nuttall oak (*Quercus nuttallii*) being subdominants. The understory consists predominantly of the shrub palmetto (*Sabal minor*), green haw (*Crataegus viridis*), possum-haw (*Ilex decidua*), and French mulberry (*Callicarpa americana*). Palmetto stands are quite dense, and many of the old tree, or trunked, palmettos can be found in the forest.

Vines are another common understory component. Poison-ivy (*Rhus toxicodendron* var. *vulgaris*), Virginia creeper (*Parthenocissus quinquefolia*), supple-jack (*Berchemia scandens*), pepper-vine (*Ampelopsis arborea*), muscadine (*Vitis rotundifolia*), and hemp-weed (*Mikania scandens*) are quite abundant in the study area. Some of the more frequently sighted understory plants include: pokeweed (*Phytolacca americana*), dewberry (*Rubus trivialis*), spiderwort (*Tradescantia ohimensis*), and the Southern shield fern (*Thelypteris kunthii*).

Another intermediate swamp is located approximately 300 m southeast of the old Barataria road. It extends roughly 300 m before sloping into a drained cypress-tupelo swamp. Intermediate swamps comprise approximately 5 per cent of the survey area. The drained intermediate swamp in this area does not have the typical palmetto stands that are associated with such swamps. Tree density is not extremely thick. The dominant varieties are the swamp red maple (*Acer rubrum* var. *drummondii*), and water oak (*Quercus nigra*). Subdominant species include: American elm (*Ulmus americana*), bald cypress (*Taxodium distichum*), and water tupelo (*Nyssa aquatica*). Ground cover is also light in the area. The most common understory plants include thistle (*Carduus* sp.), violet (*Viola* sp.), bur-marigold (*Bidens laevis*), and ferns.

Drained cypress-tupelo swamp comprises approximately 55 per cent of the survey area. It is the largest ecozone surveyed, and is found on both sides of LA 3134, and along most of the northeast survey tract. Although bisected by canals, and drained by pumps, plant species characteristic of a cypress-tupelo swamp still are found there.

Subsidence is high in these areas, and cypress mortality is quite evident. Many wetland plant species may become relict vegetation as seed recruitment from adjacent ecozones seize the area. The drained swamp is dominated by bald cypress (*Taxodium distichum*). Subdominant tree species include: water tupelo (*Nyssa aquatica*), swamp red maple (*Acer rubrum* var. *drummondii*) and ashes (*Fraxinus* sp.). Typical understory include: wax-myrtle (*Myrica cerifera*), button-bush (*Cephalanthus occidentalis*), cat-briar (*Smilax* sp.), trumpet-creeper (*Campsis radicans*), poison ivy (*Rhus radicans*), smart-weed (*Persicaria punctata*), alligator-weed (*Alternanthera philoxeroides*), swamp-potato (*Sagittaria lancifolia*), water hyacinth (*Eichhornia crassipes*), bur-marigold (*Bidens laevis*), violet (*Viola* sp.), thistle (*Carduus* sp.), and Southern shield fern (*Thelypteris kunthii*).

Drained marsh makes up the remaining 25 per cent of the study area. More than 90 per cent of the eastern survey tract, and a small portion near the center of the southeast survey tract, has been drained.

Species identification was difficult in this area because much of it recently had burned. Another factor was the fact that the survey was conducted in the winter and many of the species were still dormant. Nevertheless, typical marsh species probably still occur to some extent.

The only trees in the area were along the spoil banks of the canals and along relict stream banks. These characteristically include: black willow (*Salix nigra*), swamp red maple (*Acer rubrum* var. *drummondii*), water tupelo (*Nyssa aquatica*), and American elm (*Ulmus americana*). The most common fresh water marsh plants in Jefferson Parish on Allemands soil include: Alligator-weed (*Alternanthera philoxeroides*), common rush (*Juncus effusus*), maidencane (*Panicum hemitomon*), swamp knotweed (*Polygonum hydropiperoides*), pickerelweed (*Pontederia cordata*), bulltongue (*Sagittaria falcata*), cat-tail (*Typha* sp.), and Southern wildrice (*Zizaniopsis miliacea*) (USDA 1983:80-81).

Faunal Resources

Animal life in the Barataria Basin is diverse, and many species are considered economically important. The marsh areas are well known as one of America's richest sources of fur-bearing animals. Available game in the basin includes: deer (*Odocoileus virginiana*), racoon (*Procyon lotor*), muskrat (*Ondatra zibethicus*), swamp rabbit (*Sylvilagus aquaticus*), otter (*Lutra canadensis*), mink (*Mustela vison*), squirrel (*Sciurus carolinensis*), nutria (*Myocastor coypus*), opossum (*Didelphis virginiana*), and alligator (*Alligator mississippiensis*).

Another obvious resource is the many species of waterfowl that inhabit the area and migrate here during the autumn. The abundant fresh water in the basin provides an ideal habitat for the millions of birds that pass through southeastern Louisiana during the autumn migration. The Barataria Basin is part of the Mississippi Flyway, the largest North American migratory route. October and November are the peak migratory months (St. Amant 1959:270). In addition to game birds, such as geese, woodcock, snipe, and plover, the region also provides a habitat for many resident and migratory nongame birds. Some of these birds include: egret, heron, ibis, eagle, hawk, and owl.

Both sport and commercial fish have been abundant in the many lakes, bayous, and bays of the area. Predominant fish include: largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), catfish (*Ictalurus* sp.), silver perch (*Bairdiella chrysura*), menhaden (*Brevoortia patronus*), flounder (*Paralichthys legostimia*), spotted seatrout (*Cynoscion arenarius*), red drum (*Pogonias cromis*), and spot (*Leiostomus xanthurus*).

Many varieties of reptiles also can be found in the study area. The largest is the American alligator (*Alligator mississippiensis*). Several types of turtle, toad, frog, skink, salamander, lizard, and snake are also abundant in the Barataria Basin. Commonly found aquatic invertebrates include crawfish, amphipods, blue crab, grass shrimp, gastropod, midge larvae, tubificid worms, and clams.

Clams have long been an important staple and resource for the people who have inhabited the region. Within the Mississippi River deltaic plain, several varieties of clam can be found in the different water communities. The *Unio*, a fresh water mussel, is found in abundant numbers north of the Teche-Mississippi River course, and has not had a significant role in the immediate study area. Likewise, the *Ostrea virginicus* prefers more saline waters and is found most often toward the seaward limits of the delta (McIntire 1958:45). The clam that has had the greatest historic influence has been the *Rangia*. Two varieties exist, *Rangia cuneata* and the *Rangia flexuosa*. The *flexuosa* prefers more saline waters than the *cuneata*. The *Rangia cuneata*, a brackish water clam, was the most abundant shell noted in the survey area.

Summary

The study area is located within one of North America's unique landforms, the Mississippi River Deltaic Plain. It is also within the boundaries of the Barataria Hydrologic Unit, a 400,000 hectare intertributary delta basin. This basin was formed over several thousand years from alluvial deposits

deposited in a cycle of delta lobe formation. Several types of natural habitats were created which support a variety of flora and fauna species. The environmental zones found within the Barataria Basin are dependent upon a stable interrelationship with the hydrologic cycle. Disruption from cultural modifications or from natural causes, such as degradation or saline intrusion, have caused marked changes in the floral and faunal communities. Terrestrial, as well as aquatic habitats, may be altered to such an extent that displacement of species may occur. As changes occur in the area, fewer wetland related species will be found within the area.

CHAPTER III

PREHISTORIC SETTING

Introduction

Recent archeological studies in the Barataria Basin include both CRM surveys and educationally sponsored archeological site testing. Previous research in the region is reviewed in detail in Chapter IV. Working primarily from a prehistoric sequence developed for the Lower Mississippi Valley (viz. Phillips 1970), most researchers have applied the type-variety system to the analysis of prehistoric ceramics from the Barataria Basin area in attempts to refine the regional chronological sequence. Prehistoric subsistence and settlement patterns also are being examined for this area.

While prehistoric activity in the state dates from the Paleo-Indian Period (ca. 10000 B.C.), evidence of settlement in the Barataria Basin is considerably more recent. The earliest identified sites in the Barataria Basin date to the Tchefuncte Period (500 B.C. - A.D. 300). This is because the regions landforms are recent. The following review, therefore, begins with an examination of the Neo-Indian Stage, Tchefuncte Period; information pertaining to the earlier Paleo-Indian and Archaic periods may be found elsewhere (Webb, Shriner, and Roberts 1971; Jenkins 1974; Muller 1978; Neitzel and Perry 1978; Walthall 1980; and, Neuman 1984).

The Prehistoric Setting

Neo-Indian Stage

The Neo-Indian Stage is composed of seven distinct periods: Poverty Point, Tchefuncte, Marksville, Troyville-Coles Creek, Caddo, Plaquemine, and Mississippian. When comparing the characteristics of the Archaic Stage with those of the Neo-Indian Stage, several immediate distinctions are noticeable. Sites belonging to the Neo-Indian Stage are typically larger, suggesting both increased population densities and some degree of sedimentation.

Poverty Point (2000 B.C. - 500 B.C.)

There are only 100 known Poverty Point sites in the three-state region of Louisiana, Arkansas, and Mississippi (Smith et al. 1983). No Poverty Point sites are recorded in the survey area.

Tchefuncte Period (500 B.C. - A.D. 300)

Tchefuncte period sites date from approximately 500 B.C. to A.D. 300 (Smith et al. 1983); a few sites with components of this period are known in the Barataria region. The Tchefuncte period is characterized by the first widespread use of pottery, albeit in the context of a Late Archaic-like hunting and gathering tradition, and with a Late Archaic-like tool inventory (Neuman 1984; Smith et al. 1983). Projectile points characteristic of the Tchefuncte period include Gary, Delhi, Pontchartrain, Ellis, Epps, Kent, Macon, and Shumla. The recovery of bone and antler tools from Tchefuncte period sites also is not uncommon (Smith et al. 1983).

The Tchefuncte Culture was defined as the type site of the same name on the north shore of Lake Pontchartrain, in St. Tammany Parish, (Ford and Quimby 1945; Rivet 1973). Originally, Tchefuncte culture was thought to be an adaptation to the coastal zone of southwest Louisiana and to the middle reaches of the Vermilion River in south central Louisiana. However, sites similar to Tchefuncte sites have been documented in western Mississippi, east to Mobile Bay, in Alabama, and as far west as eastern Texas. Tchefuncte-like sites also have been reported from as far north as southeast Missouri (Smith et al. 1983).

Tchefuncte or Tchefuncte-like ceramics have been reported from southeast Missouri, northwest Mississippi, the Yazoo Basin, coastal Alabama, northeast Texas, and southeast Texas (Neuman 1984).

Tchefuncte period sites most commonly are classified either as coastal middens or inland villages or hamlets. With the exception of several sites along the Mississippi River (Goodwin, Gendel et al. 1987), settlements tend to be absent from major stream courses, occupying instead the slack water environments of slow, secondary streams that drain the bottomlands, floodplain lakes, and littoral zones (Neuman 1984; Smith et al. 1983). Recognized phases of the Tchefuncte Culture include the Pontchartrain Phase, which is centered around Lake Pontchartrain, and the Beau Mire Phase identified by Weinstein and Rivet (1973).

The Tchefuncte culture exhibited a mixture of Archaic lifeways (hunting, fishing, and gathering) and new innovations, especially the introduction of pottery. The stone and bone tool assemblages remained nearly unchanged from the preceding Poverty Point culture, although the variety of tool types declined somewhat. Stone tool assemblages include boat stones, grooved plummets, chipped celts, and sandstone saws, while bone assemblages include awls, fish hooks, socketed antler points, and ornaments. Chisels, containers, and punches, along with ornaments, were manufactured from shell. Projectile points characteristic of the Tchefuncte Period include Gary, Ellis, Delhi, Motley, Pontchartrain, Macon, and Epps (Ford and Quimby 1945).

Pottery dating from the Tchefuncte Period generally is not made well, and often has a soft, chalky paste with sand or clay temper. Vessel forms include bowls, cylindrical and shouldered jars, and globular pots. Some Tchefuncte vessels were footed, or included other types of vessel supports. While many vessels were plain, some were decorated with punctations, incisions, simple stamping, drag and jab, and rocker stamping. Motifs included parallel and zoned banding, stippled triangles, chevrons, and nested diamonds. Red ocher also was applied to some vessel exteriors (Speaker et al. 1986:38; Smith et al. 1983:164).

Examination of faunal remains from coastal Tchefuncte shell middens, composed primarily of *Rangia cuneata*, shows that these coastal sites were seasonal occupations (Byrd 1976). The high occurrence of freshwater fish remains at sites such as Big Oak Island and Little Oak Island also indicates reliance on aquatic resources. Tchefuncte social organization generally is described as egalitarian. Bands may have been as large as 25-50 individuals. Neither burials nor individual artifacts indicate a developed around status-based distinctions. Also, the uniform distribution of pottery types may indicate patrilocal residence with exogamous band marriage; this would result in the widespread distribution of similar pottery types and motifs (Speaker et al. 1983:39).

In southeastern Louisiana, Tchefuncte sites generally are shell middens located on the higher portions of the natural levees, cheniers, and lakeshores. There is little evidence the Tchefuncte people in the region were moundbuilders; rather, they occupied high, dry land near the exploited resources (Neuman 1984:134-135). Several sites in the Barataria Basin with initial Tchefuncte components are located along Bayou Barataria. These include Crown Point (16JE37), Isle Bonne (16JE60), Bayou Dupont-Dupre Cut (16JE91), and Tom Smith (16JE93). While covered by later deposits, the Tchefuncte components probably are fairly small seasonal camps.

Marksville Period (A.D. 100 - A.D. 400)

Named for the type site at Marksville in Avoyelles Parish, Louisiana, Marksville culture often is viewed as a localized version of the elaborate midwestern Hopewell culture. The similarities between Marksville and Hopewell culture in pottery manufacture and decoration, mound construction, and burial patterns are so strong that they have led some to conclude that Hopewellians relocated to the Marksville culture area (Muller 1978). In fact, early Marksville ceramics exhibit a strong Hopewell influence, often being crude copies of their Hopewell counterparts (Smith et al. 1983).

The Marksville period was characterized by its localized hybridization of the Hopewellian culture climax which preceded it in the Midwest. In addition to the Marksville pottery types, many Marksville sites in the state exhibit modified forms of the Marksville mortuary complex. While the economic base of the

culture was similar to the hunting, fishing, and gathering subsistence strategy used in earlier periods, a fairly high level of social organization is implied by complex construction and mortuary practices. These include geometric earthworks, conical burial mounds for the elite, and a unique mortuary ritual system. While large quantities of grave goods are not common at Marksville sites, some items, such as elaborately decorated ceramics, were manufactured primarily for inclusion in burials. Mortuary practices became less complex toward the end of the Marksville period, as the Hopewellian influence on the culture declined (Smith et al. 1983:171; Speaker et al. 1986:40). The Marksville Period is represented in the Barataria Basin by the Coquilles Phase (Beavers 1982).

Decorative motifs shared by Marksville and Hopewell ceramics include cross-hatching, U-shaped incised lines, zoned, dentate rocker stamping, cord-wrapped stick impressions, stylized birds, and bisected circles (Smith et al. 1983). Other Marksville culture traits include a chipped stone assemblage of knives, scrapers, and drills; ground stone atlatl weights and plummets; bone awls and fishhooks; baked clay balls; and, Gary projectile points. Exotic items diagnostic of the period include imported copper products like ear spoons, panpipes, platform pipes, figurines, and beads (Smith et al. 1983; Neuman 1984).

A variety of other artifact types also are common at Marksville sites. These include exotic and valuable materials that reflect both the extensive trade networks, and possibly a ranked, non-egalitarian society. These items almost always are recovered from burials, and include pearl beads, carved stone effigy pipes, copper ear spoons, copper tubes, galena beads, and carved coal objects. The utilitarian material culture changed little from earlier periods, reflecting overall continuity in subsistence systems. Stone artifacts recovered from Marksville sites include medium to large stemmed projectile points, atlatl weights, chipped celts, and drills (Smith et al. 1983:172).

The eastern Barataria Basin was occupied extensively during the Marksville period. Multiple mound sites were located at tributary-distributary junctions, while smaller single mound sites were situated along the ridges of the natural levees. Sites occupied during the early Marksville period include Bayou Cutler I (16JE3), Dupre Cut-Off I and II (16JE8 and 16JE9), Kenta Canal (16JE51), and Three-Bayou Bay Field (16JE98) (Gagliano et al. 1979). Sites occupied initially from the late Marksville period include the Fleming (16JE36), Rosethorn School (16JE50), Bayou Villars (16JE68), and the Shipyard (16JE85) sites. The latter three are clustered near the confluence of Bayou Barataria and Bayou Villars. Late Marksville period sites located on natural levees along the southern portion of the des Familles-Barataria distributary channel include the Cheniere St. Denis (16JE2), Bayou Dupont (16JE7), and Bayou Maurice-Bayou Cutler (16JE99) sites (Gagliano et al. 1979). Sites in the general vicinity of the project area with Marksville components include the Bayou Coquilles site (16JE37), and 16JE58, 16JE64, 16JE79, and 16JE163.

The Troyville-Coles Creek Period (A.D. 400 - A.D. 1100)

Although sometimes viewed as two distinct periods, the Troyville and Coles Creek cultures have significant similarities that warrant their study as a single period in Louisiana prehistory. Troyville culture, named for the largely destroyed Troyville mound group, was a brief transitional period that occurred after the waning of the Marksville culture, and that culminated in the Coles Creek period around 700 A.D. (Smith et al. 1983). For the purpose of defining cultural chronologies, it is unprofitable to attempt to divide Troyville from Coles Creek culture. As Belmont (1967) noted:

Indeed, one gets the impression that the distinctions between the two are insignificant, and the dividing line between them quite arbitrary.

Two technological advances emerged during the early part of the period that radically altered prehistoric lifeways; these were maize agriculture and the bow and arrow (Smith et al. 1983). Maize, beans, and squash agriculture affected the Troyville-Coles Creek lifestyle; settlement and subsistence patterns and social organization became more complex. Troyville-Coles Creek sites were typically larger, and more numerous and complex than sites of previous periods. Platform and ceremonial mound construction was not uncommon, this, in conjunction with the complex layout of some Coles Creek sites, suggests the emergence of chiefdom-like societies (Muller 1978; Smith et al. 1983).

The period also saw the development of a new ceramic complex that included a wide range of decorative motifs. Coles Creek Incised, Beldeau Incised, French Fork Incised, Mazique Incised, and Pontchartrain Check Stamped are types characteristic of the period. Ceramic vessels tend to be larger than those of preceding periods, and decorations appear to have been restricted to the upper half of the vessel (Neuman 1984). Troyville-Coles Creek ceramics show some influence from foreign cultures. Zoned rocker stamping, the use of incised lines, and curvilinear motifs are representative of decorative styles associated with the Florida Gulf Coast; cord marking and red filming were popular traits commonly used in the central Mississippi area (Smith et al. 1983). Troyville-Coles Creek sites are located primarily along stream systems where soil composition and fertility were favorable for agriculture (Neuman 1984). Natural levees were desirable locations, particularly those situated along old cutoffs and inactive channels.

The Troyville-Coles Creek Period is a poorly defined transitional period marked by stylistic changes in ceramic types between Late Marksville and Coles Creek periods. This period is contemporaneous with the Baytown period identified in the central Mississippi Valley; in southeastern coastal Louisiana, both Troyville and Baytown ceramics are located in the same assemblages (Gibson 1982).

A number of sites in the eastern Barataria region have Troyville or Baytown components. The Fleming (16JE36) and Bayou Villars (16JE68) sites probably were established during the Troyville period. The Bayou Coquilles (16JE37) site, which included a Marksville component, also sustained a sizable Troyville-Coles Creek population. Sites with potential Troyville components include the Isle Bonne site (16JE60), and 16JE56, 16JE58, 16JE77, 16JE79, and 16JE167.

The subsequent Coles Creek period is much better known than the preceding Troyville period. The population continued to increase throughout southern Louisiana, as evidenced by the large number of Coles Creek sites; this may be related to an increased dependence on agriculture, supplemented by continued reliance on hunting, fishing, and gathering. The predominant characteristic of larger Coles Creek sites is the presence of one or more mounds. These normally truncated pyramidal mounds were used to support small structures made of perishable materials. These mounds typically are larger, and exhibit more building episodes than the earlier Marksville burial mounds. While burials occasionally are recovered from Coles Creek mounds, the primary function of these mounds appears to have been ceremonial. At some sites, the mounds are connected by low, narrow causeways. Occasionally, plazas are associated with multiple mound sites.

The degree of social complexity of the Coles Creek period can be inferred from the complexity of the mound systems. The labor force required to construct the mounds suggests both a stable society, and a centralized authority to organize and implement the mound construction, maintenance, and utilization. This function probably was performed by a special religious class, while the general population occupied the region surrounding the larger ceremonial centers (Smith et al. 1983:182).

Smaller Coles Creek sites, consisting of hamlets and shell middens, normally do not contain mounds. Shell middens are especially common in the coastal region; they normally are located on the higher portions of natural levees (Speaker 1986:46). These areas were well adapted for the exploitation of the surrounding natural resources.

A wide variety of pottery was made during the Coles Creek period. Compared to the Troyville period, the pottery was both better made, and exhibited a wider range of decorative techniques. A distinctive decorative technique, on pottery known as Coles Creek Incised, was the placement of a series of incised lines below the rim of a vessel, often accompanied underneath by a row of triangular impressions (Smith et al. 1983:182-183). Other types of pottery commonly recovered from Coles Creek sites include Mazique Incised, Pontchartrain Check Stamped, and Red Filmed pottery. Common pottery shapes include flat-bottom jars, globular jars, and shallow trays (Speaker 1986:45). Two ceramic phases have been identified in the Barataria Basin region. They are Bayou Cutler and Bayou Ramos (Speaker et al. 1986:48).

McIntire noted that the ceramic features of the Coles Creek period are continuations and elaborations on those of the Troyville period. Its formalization resulted in similarities of pottery types. For example, the Churupa Punctate and the Mazique Incised designs, both of which are characteristic of the

Troyville period were used by both Coles Creek and Plaquemine pottery makers" (McIntire 1958:76). Similarly, French Fork Incised formed the basis for many Troyville classifications. However, French Fork Incised continued in use well into the Coles Creek period (Phillips 1970). The fundamental pottery of the Late Coles Creek period was checked stamped. The lack of diagnostic types of pottery and the absence of temple mounds seem to indicate that in the coastal areas, the Troyville and Coles Creek periods cannot be differentiated on the basis of pottery classifications used by archeologists studying the Lower Mississippi Valley.

Plaquemine Culture (A.D. 1100 - A.D. 1700)

Plaquemine ceramics are derived from the Coles Creek tradition. The techniques of incising and punctating, typical of Coles Creek pottery, survived in the Plaquemine culture, but Plaquemine craftsmen also brushed vessel surfaces and engraved the vessel after firing (Smith et al. 1983:193).

Sites of the Plaquemine culture were characteristically small villages or hamlets, dispersed around a large ceremonial center that consisted of raised mounds arranged about a plaza area. Houses were rectangular in shape, with thatched roofs. Social organization was highly developed, as was maize, bean, and squash agriculture.

Plaquemine culture appears to have been an indigenous development emerging from a Coles Creek base. The settlement patterns, economic organization, and religious practices established during the Coles Creek period were continued; however, an intensification of agriculture, socio-political structure, and religious ceremony took place. While ceremonial sites with multiple mounds surrounding a central plaza, and dispersed villages or smaller (hamlets) settlements are typical during this period, sites of the latter type are more prevalent in the vicinity of the project area. The Medora site (16WBR1), described by Quimby (1951) represents the type site for Plaquemine culture. Mound sites thus far identified in the vicinity of the project area include the Fleming Site (16JE36), Bayou Villars (16JE68), and Isle Bonne (16JE60). Settlement data suggests that Plaquemine culture groups selected locations similarly favored by the previous Troyville-Coles Creek groups. Plaquemine mounds often were built over earlier mounds; for this reason, it is difficult to determine whether a particular mound is Plaquemine, Troyville-Coles Creek, or both (Smith et al. 1983:194).

Plaquemine Brushed appears to have been the most widespread ceramic type. Other types include Harrison Bayou Incised, Hardy Incised, L'Eau Noir Incised, Manchac Incised, Mazique Incised, Leland Incised, and Evansville Punctate. Both decorated types and plain wares, such as Anna Burnished Plain and Addis Plain, were well made. Vessel shape, tempering, and paste were similar to those identified from earlier periods. Lithic artifacts are relatively uncommon; however, small, stemmed projectile points with incurvate sides are known from some sites (Gagliano et al. 1979). Subsistence for this period appears to have been centered on corn, beans, and squash.

Mississippian Culture (A.D. 1000 - A.D. 1700)

Late during the prehistoric period, the indigenous Plaquemine culture came under the influence of Mississippian culture from the middle Mississippi River Valley. Mississippian culture extended its influence in the upper portions of the lower valley, sweeping across north Mississippi and west Tennessee, and as far east as central North Carolina (Haag 1971). This Mississippian influence continued to impact the lifeways of inhabitants of Louisiana right up to historic contact. Mississippian sites in Louisiana typically are found on the extreme Southeast coast and in an isolated pocket in the northeast part of the state.

The Mississippian subsistence pattern was based upon a three-part strategy: the cultivation of maize, beans, squash and pumpkins; the collection of local plants, nuts and seeds; and, fishing and hunting of local faunal species. Mississippian settlement patterns reflect this diversity of subsistence activities; major Mississippian sites are located on sandy and light loam soils in the fertile bottomlands of major river valleys. A typical Mississippian settlement consisted of an orderly arrangement of village houses, situated around

a truncated pyramidal mound. Such mounds were characteristic of Mississippian settlements, and served as platforms for temples or for the houses of the elite. Mound arrangements imply community planning, a strategy only possible under a highly organized and complex social system.

Mississippian pottery is distinguished by its shell tempering, a technological innovation that enabled potters to create larger vessels (Smith et al. 1983:203). Ceramic vessels include globular jars, plates, and bottles, as well as loop- and strap-handled pots. Decorative techniques include negative painting, engraving, and incising; modelled animal heads and anthropomorphic images were used as adornments. Other Mississippian artifacts include chipped and ground stone tools; shell items such as beads, gorgets, and hairpins; and, copper and mica items.

CHAPTER IV

PREVIOUS INVESTIGATIONS

Previous Archeological Investigations Near the Project Area

Numerous archeological investigations have occurred in the Barataria area of Jefferson Parish. Kniffen (1936) collected aboriginal ceramics from approximately fifty sites in the lower Mississippi River delta, including two sites (Fleming, 16JE36; and Isle Bonne, 16JE60) in Jefferson Parish. He defined two ceramic phases: Bayou Cutler and Bayou Petre, in an attempt to establish a temporal classification of archeological sites within the region, and to determine the geomorphological sequence of the Mississippi River delta lobes.

McIntire (1958) conducted an archeological survey of central Louisiana, providing valuable data on spatial and temporal patterns of coastal and delta sites. Three sites in Jefferson Parish were examined during this study (Fleming, 16JE36; Coquilles, 16JE37; and, Bayou Bardeaux, 16JE46). While the survey methods used were not explained, it is probable that some excavation supplemented the surface collection at the examined sites.

In 1974 and 1975, Neuman conducted two archeological surveys along waterways within the Barataria region. Neuman (n.d.a) surveyed a portion of the Bayou Barataria-Bayou Perot area and identified three sites (Fleming, 16JE36; Isle Bonne, 16JE60; and Bayou Villars, 16JE68). He reported that vessel wave action was causing considerable erosion to 16JE60, and that construction activity was severely impacting 16JE68. Neuman (n.d.a) also conducted a boat survey of the Bayou Segnette Waterway; however, no new sites were located.

Holley et al. (1977) excavated a portion of the Fleming Site (16JE36); four areas were tested, including a midden along Bayou Barataria, a large mound, a suspected midden, and a non-midden area. Although inadequate stratigraphic information was recorded, the authors identified Coles Creek, Plaquemine, and Mississippian occupations at the site. A radiocarbon date of A.D. 1095 ± 65 was obtained from a probable late Coles Creek period context. The authors also defined the Barataria phase of the early Mississippian Period and the localized Barataria Complex at 16JE36, 16JE60, and 16JE68. Additionally, three burned corn cob fragments were recovered; this represents the only maize reported from the Mississippi alluvial delta.

Gagliano et al. (1975) examined a portion of the Gulf Intracoastal Waterway in Bayou Barataria. This survey focused on the relocation, evaluation, and assessment of several previously recorded sites. Mitigative action was recommended at two sites being impacted by vessel wave action (16JE36 and 16JE60). Limited testing also was recommended at three threatened sites to assess their research potential (16JE53; 16JE54; and Bayou Villars, 16JE68). In addition, Gagliano et al. (1975) identified the junction of Bayou Barataria and Bayou Villars as a significant archeological locale.

Shenkel (1975) surveyed a portion of the Bayou des Familles Flood Protection Levee zone, north of the V-levee, in the vicinity of the current project area. Shenkel identified two shell middens; one (16JE62) is approximately 450 m northeast of the V-levee canal, and the other (16JE61) is south of the current project area, within the Jean Lafitte National Historical Park, Barataria Unit.

Gagliano et al. (1979) conducted an extensive archeological survey of more than seventy-five previously reported sites within the Barataria region. Detailed ceramic analysis provided the framework for a well-documented settlement, temporal, and spatial analysis of the project area. In addition, a summary of the geomorphology and ecology of the Barataria Basin was provided. Recommendations on the mitigation and the investigation of all threatened sites also were made.

Beavers (1982) conducted an archeological inventory of the Barataria Unit, Jean Lafitte National Historical Park. Sites within the park were relocated to assess their condition, and a portion of the natural levee adjacent to Bayous des Familles, Coquille, and Barataria was sampled to locate additional sites. A

bankline survey along Lake Salvador also was performed; a portion of the marsh environment in the core area of the park was examined for archeological sites. A total of 57 archeological sites were identified, including 39 previously unrecorded sites. All sites either were classified as prehistoric or as having an unknown cultural affiliation. Subsequent analysis by Speaker et al. (1986) suggested that eleven of these sites were non-sites, i.e., they were simply dredge spoil or natural shell deposits.

Beavers et al. (1982) conducted data recovery excavations at the Coquilles Site (16JE37) nearly a mile southwest of the West Bank Hurricane Protection Project area. At least two occupational layers were identified, separated by a flood episode. Postmolds, possibly from domestic structures, were located; a large sample of Marksville period ceramics was collected and later analyzed. The Coquilles ceramic collection was analyzed by Giardino (1984), who identified both Marksville and Troyville-Coles Creek period ceramics. Giardino attempted to define an early or late Marksville occupation; however, temporal markers used elsewhere in Louisiana were not present within this ceramic collection.

DeMarcay (1982) performed data recovery at Area B of the Isle Bonne Site (16JE60). During excavation, ceramics from the Troyville period, Bayou Cutler phase, were collected. DeMarcay concluded that the mound at Area B actually was a portion of a subsided levee ridge. The results of earlier excavations at this mound by the Louisiana Archeological Society have not been analyzed or reported.

Holmes and Birkedal (1983) tested the Coquilles Site (16JE37), and monitored the placement of a utility trench through the eastern edge of the site. Monitoring documented the midden deposit, and several C-14 samples recovered during that effort dated from A.D. 280 to A.D. 1170. No features were reported. Additional archeological testing in the western half of the midden resulted in the identification of a series of postmolds.

R. Christopher Goodwin & Associates, Inc. (Gendel 1984) surveyed a six foot wide corridor along the eastern bank of the Kenta Canal prior to the construction of a boardwalk. This included both a boat and a pedestrian examination of the project area. No archeological sites were recorded during this survey.

Holmes (1984) presented a detailed summary of the archeology and history of the Barataria Unit, Jean Lafitte National Historical Park, and surrounding vicinity. The report was based largely upon primary historic research, although a review of the area's major archeological sites also was provided. The historic coverage is extensive and includes the identification and discussion of several historic sites and features. The report also contained a National Register of Historic Places form nominating the Barataria Unit as an archeological district.

R. Christopher Goodwin & Associates, Inc. (1985) surveyed several six foot wide construction corridors within the Barataria Unit, Jean Lafitte National Historical Park. This survey included a pedestrian survey augmented by shovel testing in areas of high site probability and in areas with low surface visibility. Two features were identified, relict cane fields and drainage ditches associated with Christmas Plantation, and the remains of an early twentieth century residence. Neither was a significant cultural resource.

R. Christopher Goodwin & Associates, Inc. (Goodwin, Yakubik et al. 1985) also compiled a comprehensive archeological and historic sites inventory of Jefferson Parish. While emphasis was placed on historic sites, a review of previously recorded prehistoric sites, their condition, and research potential was addressed. The report also included a useful collection of historic maps of the parish.

Kelley and Bryant (1986) surveyed a portion of historic Estelle Plantation, on the east side of Bayou des Familles. Their project area began about 400 m northeast of the current project area at the bayou, and overlapped much of the east and southeast sides of the current project area. However, field survey was conducted only along the bayou, and along three narrow transects perpendicular to the bayou. Kelley and Bryant failed to examine that portion of their project area which overlapped the current project area. During that study, Kelley and Bryant located eight prehistoric archeological sites, one with a possible historic component. Seven of these sites (16JE149 - 16JE155) were previously unrecorded, while the eighth, which contained a possible historic component, was interpreted as the previously identified site 16JE62 (Kelley and Bryant 1986). This association of one of their identified sites with 16JE62 has not been verified.

Basile and Goodwin (1986) conducted a cultural resources survey of the proposed Fleming Park Road Water Line Crossing, on Bayou Barataria. The survey area was adjacent to the Bayou Villars Site (16JE68), a Marksville-Troyville period mound site. Part of the survey effort included delineation of the 16JE68 site boundaries. No in situ cultural deposits were located in the project area. Two of the mounds at 16JE68 were evaluated as modern dredge spoil house mounds, and only one platform mound was identified as an aboriginal earthwork.

Speaker et al. (1986) prepared an archeological assessment of the Barataria Unit, Jean Lafitte National Historical Park for the Southwest Region of the National Park Service. This study provided a synthesis of previous investigations performed within the Barataria Unit area. A summary of relevant geomorphological and environmental data, and a regional and local culture history were included. A plan for the proper management of the unit's archeological resources, and recommendations for implementing the plan, were addressed.

Poplin and Goodwin (1987) conducted a cultural resources survey of a 12 acre tract within the Barataria Unit, Jean Lafitte National Historical Park. The entire project area was shovel tested, augered, and surface collected, and no archeological sites were located within the impact area. A small shell midden (16JE195) was recorded outside of the project boundaries. No artifacts, other than modern debris, were recovered from the surface of the midden; it remains unclear whether the midden is a natural or cultural deposit.

Swanson (1988) studied historic land use within the Barataria Unit, Jean Lafitte National Historical Park. Her study provided a compilation of historical data relevant to the Barataria Unit, and synthesized those data with reference to known historic sites in the Barataria Unit. A discussion of historic settlement patterns also was included.

Franks and Yakubik (1988) conducted an archeological survey of a 65 acre area within the Barataria Unit, Jean Lafitte National Historical Park, immediately northwest of the 12 acre tract surveyed by Poplin and Goodwin (1987). During their survey, Franks and Yakubik recorded a steam engine foundation associated with Christmas Plantation (16JE196), which was mapped, but not tested extensively. They also identified seven prehistoric sites (16JE200 - 16JE206). A 1 x 1 m unit was placed in six of the prehistoric sites, and three units were placed in the seventh site, 16JE201. Prehistoric pottery was recovered from five of these sites (16JE200, 16JE201, 16JE202, 16JE204, and 16JE206). Seven possible eighteenth century sites (16JE163; 16JE197 - 16JE199; and 16JE214 - 16JE216) also were tested. Following an analysis of the 94 aboriginal pottery fragments recovered from excavations, Franks and Yakubik (1988) recommended that all of the prehistoric sites (except 16JE205) be included as contributing elements of the Barataria Historic District.

Previously Located Sites Near the Project Area

Several prehistoric mounds are present in the Barataria area, including three Marksville mounds (16JE3, 16JE37, and 16JE53); three, or possibly four, Plaquemine/Mississippian Period mounds (16JE36, 16JE60, 16JE68, possibly 16JE81); and, three unidentified mounds (16JE43, 16JE57, and, 16JE58). Several of these mounds have been tested archeologically, including 16JE36 (Holley 1977), 16JE37 (Beavers et al. 1982; Holmes and Birkedal 1983; Giardino 1984, n.d.), 16JE53 (Lamb 1982), and 16JE60 (DeMarcay 1982). Several have been damaged by natural and cultural forces, and one (16JE43) has been destroyed.

The majority of prehistoric sites identified in Barataria are shell scatters and shell middens, most of which are located on natural levees adjacent to waterways. Identified midden deposits span the entire prehistoric occupation of the region, from the Tchefuncte Period through the Plaquemine/Mississippian Period. These sites generally were occupation sites, and occasionally included burial grounds (Speaker et al. 1986). Most have not been tested extensively. Examples in the immediate project area include 16JE46, 16JE51, 16JE53, 16JE56, 16JE60, 16JE62-65, 16JE70-80, 16JE83. A number of these sites have been damaged or destroyed by natural and cultural forces.

A number of historic sites also have been located near the project area; they normally are located on the natural levees adjacent to waterways, although some are situated in the backswamps. While some historic sites have been assigned state site numbers, many have not been recorded archeologically or extensively tested.

The earliest of these historic sites include six possible building sites associated with the 1778-1783 occupation along Bayou des Familles by the Isleños. According to Swanson, these sites generally are located on a natural levee 1000 - 2000 feet east of the bayou, spaced about 580 feet from each other, and 200 feet west of the *Camino Real de Barataria*, the old Barataria Road. The sites consist of two foot high mounds, and are approximately 35 feet square. Large circular depressions, possibly the remains of borrow pits, are adjacent to the mounds. While none have been examined extensively, Spanish artifacts have been surface collected from each site (Swanson 1988:120-122). These include Sites 16JE197, 16JE198, 16JE199, 16JE214, 16JE215, 16JE216. A seventh site (16JE163), also thought to date from the Spanish period, is located west of the other six sites, directly west of Bayou des Familles. These sites all are within a mile of the current project area.

The remains of several nineteenth century sugar plantations have been identified in the northern portion of the Barataria area, in the vicinity of the project area. These include Christmas Plantation, Carter Plantation, Estelle Plantation, Mavis Grove Plantation, Pecan Grove Plantation, and Kenta Plantation (Holmes 1984). Identified components include big house remains; cabins; sugarmill remains; waterwheels; field, ditch, and canal remains; and auxiliary structure remains. While the spatial relationship of the visible archeological deposits at Christmas Plantation have been examined (Swanson 1988), only a steam engine foundation discovered at Christmas Plantation (16JE196), a part of the sugar production system, has been recorded with the state. No other plantation remains in the area have been assigned state archeological site numbers, and none has been tested extensively.

Archeological deposits associated with the lumber industry in Barataria have been identified, although not recorded with the state. These remains include the Pecan Grove Water Wheel Sawmill, at least two other sawmills, and a few lumber camps (Holmes 1984). These remains reflect the extensive logging activities that occurred in the Barataria region during the nineteenth and twentieth centuries.

Several historic cemeteries also have been recorded. These include cemeteries at 16JE35, 16JE36, 16JE115-120, and 16JE126. Most of these date from the late nineteenth and twentieth centuries. Several historic shell middens have been found in the Barataria area; these sites date from the eighteenth and nineteenth centuries. Some are historic sites built on prehistoric midden deposits; others may be solely historic sites. While none of these sites has been tested adequately, they may include small domestic sites and temporary campsites. Recorded examples include 16JE94-96, 16JE100, 16JE101, 16JE181, and 16JE182.

Some twentieth century archeological deposits have been noted near the project area. These include the remains of a planned subdivision on Christmas Plantation, several cabins, and remains of the 1960s Crown Point Oil Field, part of which lies within the Barataria Unit, Jean Lafitte National Historical Park (Swanson 1988). None of these loci were recorded with the state.

Barataria Historic District

The Barataria Historic District was listed on the National Register on May 11, 1989. Information about this district was obtained from the completed National Register of Historic Places Nomination Form on file at the Louisiana Division of Historic Preservation, Baton Rouge, which was prepared by Barbara Holmes. The Barataria Historic District, located immediately southwest of the project area, consists of 1855 acres within the Barataria Unit, Jean Lafitte National Historical Park. Contributing elements include 57 archeological sites and six structures. The sites include a variety of prehistoric mounds and shell middens, most situated along Bayou des Familles and Bayou Coquilles. In addition, there are several sugar plantation remains associated with Christmas and Kenta Plantations, along with Spanish colonial sites, a logging canal, and early twentieth century subdivision remains. No part of this district lies within the current project area.

CHAPTER V

HISTORIC LAND USE OF THE PROJECT AREA

Introduction

The eighteenth century settlers of the Barataria study area harvested timber, raised cattle, and to a lesser extent they grew crops. These types of extractive and agricultural activities continued until the mid nineteenth century. On the western side of Bayou des Familles, large scale sugar cane agriculture was attempted; however, this was abandoned by 1875. Shortly after World War II, a portable sawmill was placed in operation within the project area.

Land use in the Barataria study region was typical of the south Louisiana backlands; the highest ground was used for habitation; the alluvial dry areas were used for planting and grazing; the inundated forest provided wood for logging; and, the watercourses provincial transportation routes. Most of the historic landowners of the project area owned land along the Mississippi River to the north, and used the Barataria property as supplemental land.

The proximity of the Barataria Basin to the City of New Orleans, the Mississippi River, and the Gulf of Mexico was strategically important to the successive French, Spanish, and American regimes. In particular, the Spanish, considered the area to be a good location for populating the Louisiana colony. However, this region always has remained sparsely populated, and regional flooding during the late eighteenth and early nineteenth centuries forced many residents to abandon their property claims. As a result, land claim disputes concerning ownership and property boundaries arose during the first half of the nineteenth century. By 1845, these land disputes were settled, and the study area comprised the back acreage of the Estelle and Carter sugar plantations. The lower Estelle Plantation was not cultivated, but remained wooded. The study property on the Carter Plantation west of Bayou des Familles was cultivated between 1857 and 1875, although annual flooding eventually forced abandonment of large scale agriculture in the area.

Colonial Period

Figure 2 shows the Barataria region as depicted by French colonial cartographers. The French immediately recognized the valuable resources of the Barataria region (timber, game, and watercourses to the Gulf of Mexico), and land claims in Barataria were some of the first in the region to be granted. In 1726, Jean-Baptiste Massy, Jean-Baptiste Bourbeau, and Charles Frederic de Merreilleux were granted 40 arpents front on both sides of Bayou Barataria (Ouachas) to a depth of 120 arpents. This tract included Bayou des Familles, which joined Bayou Barataria below the project area. The Massy tract included a portion of the project area located north of Bayou des Familles (Figure 3). Massy and Merreilleux dissolved their partnership before 1730; Bourbeau was killed in the 1732 Natchez uprising.

Massy, Bourbeau, and Merreilleux used the Barataria property for lumbering, raising cattle, and for tobacco and cotton farming. Logging roads built along the east side of Bayou des Familles were used to supply oak and ash to the Company of the Indies (French Superior Council Records, No. 2312 59/19, Louisiana State Museum; Louisiana Historical Quarterly 1919:472, 473).

The 1726 census records the Massy ownership "Le sieur Massy, house for his employees when he is not on his plantation" (Maduell 1972:65). Massy and Bourbeau also were listed as colonists requesting additional Negro slaves. The same census stated that Massy lived in a house along the quay in New Orleans. By the next year's census, Massy had moved to the Barataria property with an orphan boy and 27 negro slaves. In addition, Jean Baptiste Bourbeau was recorded as having nine servants and six negro slaves in the Barataria region (Maduell 1972:100). The 1731 census shows that Sieur Massy lived on his Barataria plantation with one woman (or marriageable girl), two European engagees, three men capable of bearing arms, 30 negro slaves, and 21 negro children (Maduell 1972:122). The woman listed in the 1731 census was Jeanne Faucon Dumanoir; they later married (Forsyth and Pleasonton 1980:24). According to

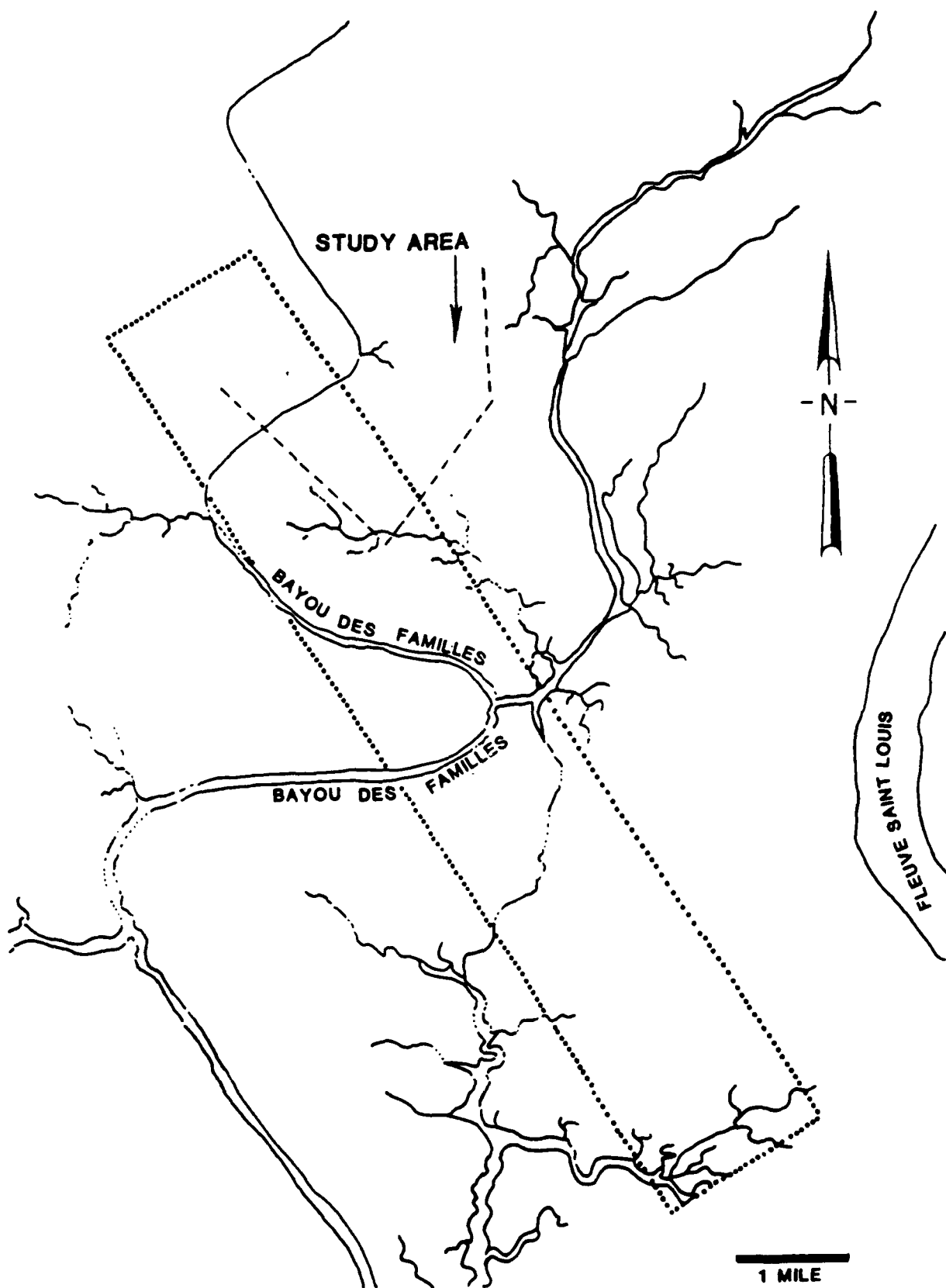


Figure 3. Projected location of 1726 J. B. Massy tract and location of study area (After Swanson 1988).

Cruzat (1918:134), Massy's slaves and a steward named Joseph Cazenave raised livestock and grew tobacco and cotton on the Barataria plantation. The buildings on this plantation were situated south of the study area, at the confluence of Bayou Barataria and Bayou des Familles. The residential complex consisted of the main house, the steward's house, ten slave cabins, a cotton storehouse, a small tobacco storehouse, and two tobacco curing houses (Records of the Superior Council, No. 2313 59/19, Louisiana State Museum; Cruzat 1919:134; Swanson 1988:84).

In 1732, Massy purchased land situated downriver from New Orleans from Sieur D'Hauterive. At Massy's death in 1734, it is likely that he still owed D'Hauterive (later spelled Dauterive) because Dauterive acquired part of Massy's Barataria holdings on the right bank of Bayou Barataria during the 1740s. Jean Antoine Bernard Dauterive obtained 90 arpents front on Bayou Barataria on the eastern side of Bayou des Familles. Documentation of Dauterive's acquisition of the Massy holdings apparently was lost and reported missing in two court cases in 1823. After Massy's death, his widow, Jeanne Faucon Dumanoir, married Gilles Augustin Payen, Chevalier de Noyan, Mayor of New Orleans. They continued to maintain the Barataria property (outside of the study boundaries) on the right bank of Bayou Barataria into the 1750s (Lowrie and Franklin v. 3 1838:510; Swanson 1988:83).

Ranching, lumbering, and crop raising continued during Dauterive's tenure. Dauterive raised livestock and grew indigo on property that stretched along both sides of Bayou des Familles. Dauterive's buildings, like Massy's, were situated downriver from the project area, on the east bank of Bayou des Familles, near its confluence with Bayou Barataria. When Dauterive sold the land in 1768, the inventory included two Native American slaves, 100 head of cattle, 100 head of sheep, 20 pigs, and 60 piglets (McDonogh vs. Degruys, Docket No 1007, NONA; Dauberville-Boulogny Papers, The Historic New Orleans Collection; Swanson 1988:84).

In 1768, Dauterive sold property located in the present study area to two fur trappers named Antoine Boudousquie and Elie Hugues. In 1772, Hugues sold his half of 40 arpents to Alexander Guerbois. Boudousquie, Hugues, and Guerbois used the property for fur trapping. Their residential complex included the former Dauterive buildings (McDonogh vs. Degruys, Docket No. 1007, NONA; Seghers, March 10, 1829, NONA).

Boudousquie and Guerbois sold a portion of their land to Pedro Alberto Bonne in 1774. Bonne's 1799 will documents the raising of sheep, lumbering, and the cultivation of indigo, but it is not unclear if he used land in the project area for these purposes (C. Ximenes, Oct. 28, 1799, NONA).

In 1799, Bonne sold 10 arpent front tracts on Bayou Barataria to the King of Spain and to Louis Pellerin (Roxas, May 14, 1779, NONA). Pellerin immediately sold his 10 arpent tract to Andres Jung who then donated it to the King of Spain (Roxas, July 12, 1779, NONA; Roxas, July 1779, NONA). The Spanish government purchased land in the Barataria region for Spanish speaking loyalists from the Canary Islands known as Isleños.

Isleños

The Isleños, or Canary Island immigrants, sailed to America to settle portions of the new Spanish possessions in Louisiana. A royal order dated August 15, 1777, at San Ildefonso, informed Matias de Galvez, lieutenant of the King in the Canary Islands, that he was "to recruit people in those islands to complete the Louisiana Infantry Battalion and form a second one which must be increased" (Archivo Generale de Indias, legajos 2,661, Louisiana State Museum). A maximum of seven hundred recruits was requested, the only requirements being that they be between seventeen and thirty-six years of age and healthy. The king ordered that preference should be given to married men who would bring their wives and children (Hoffman 1979:379). These Canary Islanders were sent to the province of Louisiana in the years between 1777 and 1783. The actual number of Isleños who reached Louisiana "was hardly enough to establish five small localities in the south, around New Orleans" (Hoffman 1979:299). Fifty-seven families (approximately 250 persons) sailed from Santa Cruz de Tenerife late in 1778 and early in 1779, and settled in the Barataria Basin along the eastern shore of Bayou des Familles (Figure 4). Because the original documentation Barataria

Isleños land tenure has yet to be found in the New Orleans, Havana, or Seville archives, it is uncertain which particular Isleño families occupied the study area tracts between 1779 and 1794. According to the amateur historian Betsy Swanson "the Canary Islander tracts formed one continuous settlement that stretched seven aerial miles northward of Bayou Barataria along both sides of Bayou des Familles" (Swanson 1988:95).

The Spanish government provided the Isleños with houses, utensils, implements, firearms, a few animals, clothing, money, and rations. Each family was granted at least five arpents fronting the bayou for farming and stock raising. The Isleños tried farming, raising stock, and hunting and fishing, but these activities were consistently thwarted by flooding. The settlement also was struck by severe hurricanes in 1779, 1780, 1793, and 1794, and by major floods in 1796, and 1802 - 1804. Bayou des Familles was a natural drainage for the Mississippi River and large crevasses opened during high water. The 1788 census reported 25 white and 15 black persons living at the original Barataria "Pueblo" settlement, but the 1796 crevasse wiped out five Isleño families (27 persons), as well as their crops and animals (Holmes 1970:27). After the 1802 - 1804 crevasse, the remaining Isleños relocated to Bayou Terre aux Boeufs in St. Bernard Parish (Holmes 1970:27; Swanson 1988:96).

By 1794, most of the original Isleño Baratarians had abandoned their tracts because of flooding. Most of the Isleño claims were forgotten by the late Spanish period; therefore, many of the properties, including properties located within the project areas, were reclaimed. As a result, claims in the region were disputed well into the first half of the nineteenth century.

The Nineteenth Century

The Spanish government regranted the abandoned land of the *Poblacion de Barataria*, the Isleños, in the last decade of the eighteenth century. The new grants were larger than the original five arpent Isleño tracts, to encourage the new claimants to remain on the land despite the fact that most of the acreage was inundated (Swanson 1988:138). Various persons claimed (or reclaimed) property during the late Spanish period, including Antoinio Vart, Nicolas Daume, Pedro Lartique, Domingo Bouligny, and Marie Joseph Bochean.

Between 1794 and 1835, property divisions in the project area changed according to court decisions concerning the many land claim disputes. Figure 5 is an 1829 d'Hemecourt survey of the project area. This plan depicts various owners such as Bouligny, Degruise, Carraby, and Jourdan as having overlapping claims. The 1829 plan also demonstrates that Township, Section, and Range boundary lines were uncertain and inconsistent with the modern section lines of Section 1 in T15S, R23E, Section 49 in T15S, R24E, and Section 55 in T14S, R24E, which corresponds to the project area.

An 1802 plan (not reproducible) by Barthelemy Lafon shows that portions of the project area were owned by the Bouligny family (Lafon, Jan. 16, 1806, Plan Book 106, Folio 28, NONA). Domingo Bouligny's mother, Marie Dauberville, received the smaller property from Marie Olivares, the widow of Pablo Suarez. In 1800, Suarez was granted seven arpents along both sides of Bayou des Familles including Section 1, T15S, R23E, in 1800 by Governor Galvez (Broutin, August 6, 1800, NONA). "Records suggest that the [Suarez] grant confirmed an earlier grant in Louisiana with his wife, Marie Olivares, and four-year-old son Juan, in 1779" (Swanson 1988:142). According to records, Olivares was the last remaining Isleño settler in the area; she died in 1807. Olivares deeded her property to Marie Dauberville and her son, Louis Bouligny. As stated, this property was situated directly below the rear of the large Domingo Bouligny plantation that fronted the Mississippi River. After the property line dispute was settled in the 1830s, the Domingo Bouligny line was drawn across the eastern Suarez tract. The protection levee and the northern Jean Lafitte Historical Park boundary line follow the Bouligny property line as it crosses the former Suarez property and creates the lower boundary of Section 1, T15S, R23E (Seghers, June 30, 1834, NONA; Franklin and Lowrie 1838 v.2:335-336; Swanson 1988:144).

The Boulignys were an important family during the Spanish period. Francisco Bouligny, who sailed to Louisiana with O'Reilly in 1769, is remembered as the person who preceded the new Spanish governor from Balize to New Orleans to proclaim his arrival. During the following years, Francisco Bouligny served

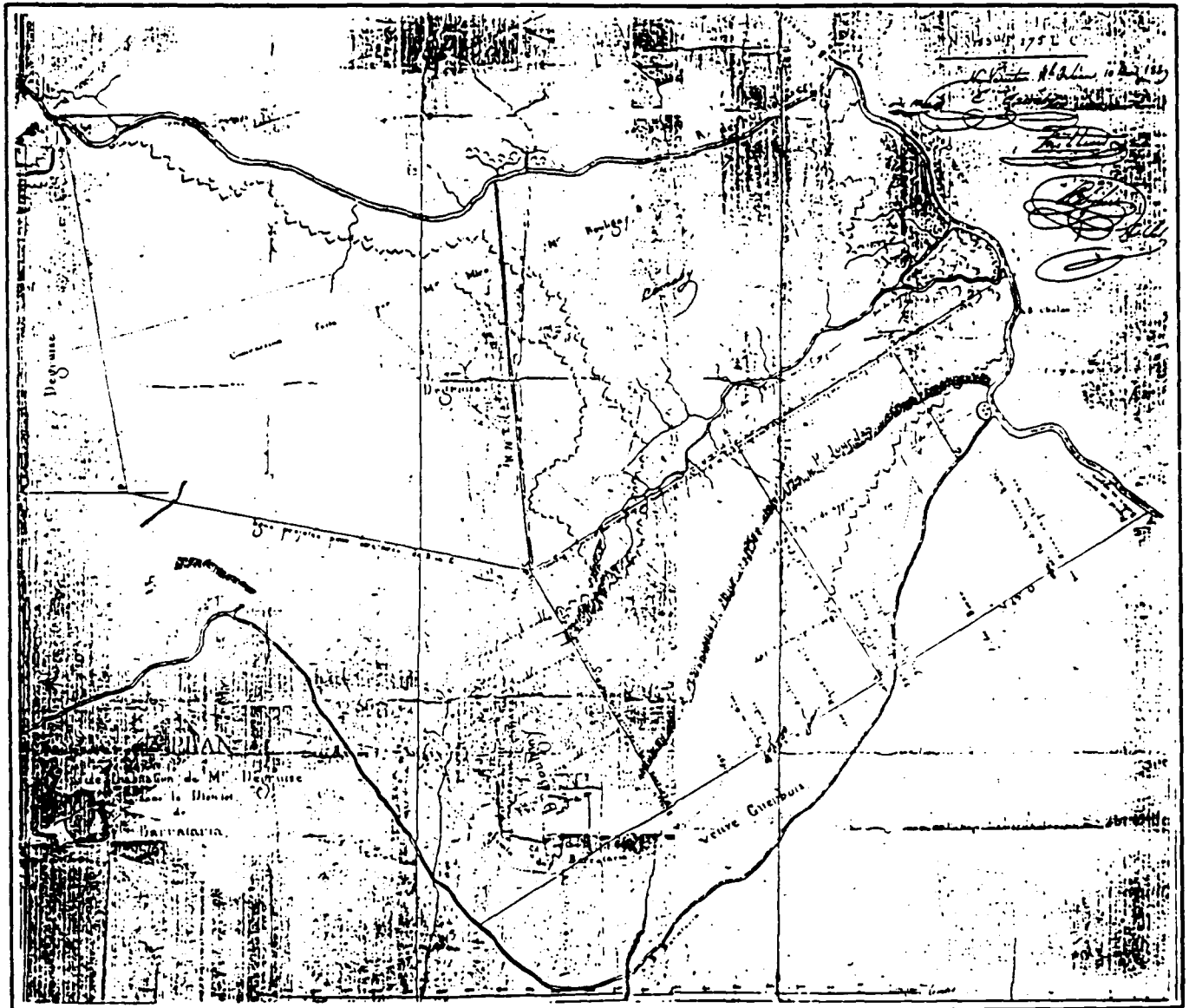


Figure 5. Plan de l'habitation de M' Degruise dans le District de Barataria, by J.A. d'Hemecourt (T. Seghers, March 10, 1829, NONA).

in various capacities, including acting governor and leader of the local militia. In 1770, he married Marie Louise Le Senechal d'Auberville, daughter of Vincent Guillaume Le Senechal d'Auberville (Conrad 1979:95). In 1775, Bouligny sailed to Spain and wrote his famous *Memoria*, a description of the Louisiana colony for the King of Spain. Bouligny owned a house in New Orleans and a plantation across the Mississippi River. He died in 1800, leaving his succession to his wife and four children. Family papers indicate that Louis Bouligny used property in the project area as a dairy farm (Dauberville Bouligny Papers, D-B121, The Historic New Orleans Collection: Kuntz Collection, Tulane University Library).

The Plantation Period

In 1813, Louis Bouligny sold a parcel of his property to Leon Dauphin, a free-man-of-color (T. Seghers, June 30, 1834, NONA). Dauphin later sold his tract to Pierre Foucher in 1815 (T. Seghers, Oct. 19, 1837, NONA). Between 1815 and 1830, various persons claimed this land, including John McDonogh. The review of courthouse documentation indicates that the study area was not being used during this time. The disputed properties eventually were purchased by Laurent Millaudon (the eastern side of Bayou des Familles) and by J. W. Ross (the western side of Bayou des Familles).

Ross acquired his land from John McDonogh before the Civil War (Barnett, April 5, 1859, NONA). In 1857, the Widow Ross sold the land west of Bayou des Familles to Jacob U. Payne, the first planter in the project area to attempt large scale sugar cane cultivation. The Ross property was used mainly for raising livestock. High water destroyed most of his crops, especially flooding caused by Bell's Crevasse (Champomier 1859) (Table 1). In 1866, Payne sold his plantation to William Stackhouse, who sold it to John H. Carter the following year (Figure 6) (Shannon, May 25, 1866; March 7, 1867, NONA). Carter's attempts at raising sugar cane and vegetables were unprofitable. Consequently, the Citizen's Bank of Louisiana purchased the foreclosed Carter plantation at a sheriff's sale in 1875 (2nd JDC, No. 3961, JPC). For the next twelve years, this land remained unoccupied. In 1892, it was purchased by Hugo Mehnert (Taylor, March 5, 1885, NONA). Figure 7 shows the Carter Plantation in 1884. This plan shows that the Carter sugar house and appurtenances were located north of the project area on the western side of Bayou des Familles. Hugo Mehnert and William Rebenstich bought property in 1892 (Taylor, March 5, 1885, NONA), and used the land for ranching and logging (Swanson 1988:231).

Laurent Millaudon purchased land east of Bayou des Familles, which was the lower portion of the Domingo Bouligny plantation. Bouligny also owned large tracts of land above the project area, which he and Francois (Francisco) Dutillet had purchased from Pedro Lartigue in 1803. They sold the land to Antoine Carraby in 1808 (Pedesclaux, Jan. 18, 1803, NONA). In 1829, Millaudon purchased it from Carraby, and eventually acquired the adjacent property below (T. Seghers, March 10, 1829, NONA). Millaudon received seventeen and one-half arpents front on the eastern bank of Bayou des Familles. After purchasing adjacent frontage from the bordering properties of Louis Bouligny and Antoine Foucher, including riverfront land along the Mississippi River, Millaudon owned the largest sugar estate in Louisiana. The Millaudon properties were comprised of Front Place Plantation, which fronted 28 arpents on the Mississippi River, and Estelle Plantation, which included the project area (Figure 7). The lower limit of the Millaudon estate was Estelle Plantation; the project area was known as Lower Estelle.

Millaudon, whose vast estate originated along the Mississippi River, did not plant cane as far south as the project area. "The area remained uncultivated and wooded through the plantation period" (Swanson 1988:274). Figure 7 confirms this fact. One reason for this might have been the immense flooding of these lands by the overflow of the Mississippi River during the nineteenth century. Champomier (1852, 1859) detailed two of the area's largest crevasses during the 1850s:

Three other crevasses happened in the Parish of Jefferson and Orleans, all causing more or less destruction. The break in the levee at Mr. L. Millaudon's Plantation, and the one at the plantation then owned by General C. Lacost & Son, were closed before a great deal of harm was done...(Champomier 1852:General Remarks).

Table 1

SUGAR PRODUCTION AT BARATARIA PLANTATION WEST OF BAYOU DES FAMILLES
(Champomier 1844-1859; Bouchereau and Bouchereau 1869-1875)

<u>Year</u>	<u>Owner</u>	<u>Hghds</u>
1845	James Waters	309
1849	James Water & J.W. Ross	"lost due to overflow"
1850	J. W. Ross	209
1851	J. W. Ross	[Partly overflowed] 225
1852	J. W. Ross	215
1853	J. W. Ross	485
1854	J. W. Ross	270
1855	Estate of J. W. Ross	197
1856	Estate of J. W. Ross	100
1857	Payne & Harrison	---
1858	Payne & Harrison	---
1859	Payne & Harrison	38
1860	Payne & Harrison	245
1861	Payne & Harrison	304
1868	J. H. Carter	101
1869	J. H. Carter	75
1870	J. H. Carter	190
1871	J. H. Carter	142
1872	J. H. Carter	100
1873	J. H. Carter	38
1874	Citizen's Bank	---
1875	Citizen's Bank	---

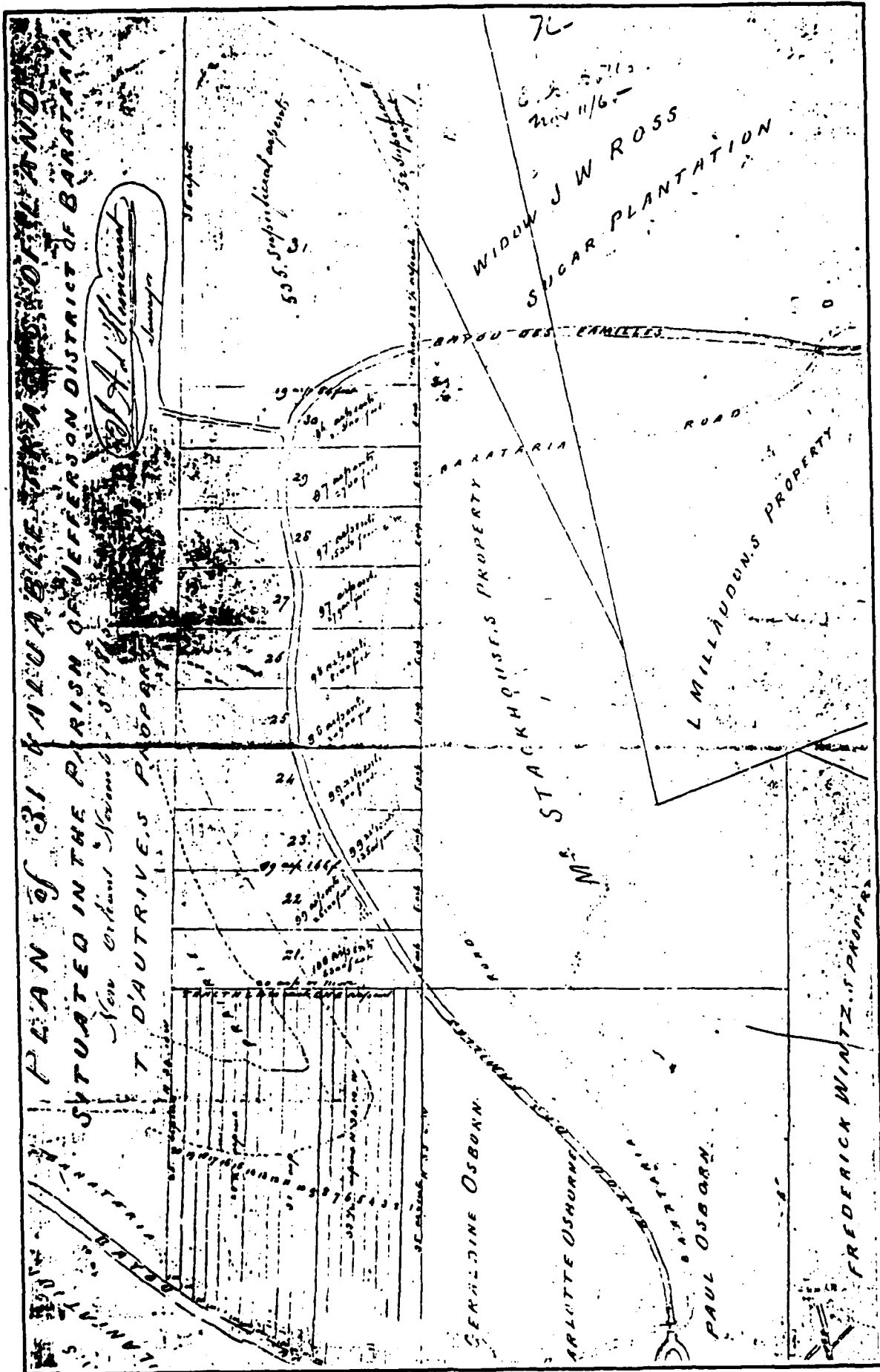


Figure 6. Plan of 31 Valuable Tracts of Land Situated in the Parish of Jefferson District of Barataria, dated November 3rd, 1865, by J.A. d'Hemecourt (E.G. Gottschalk, November 11, 1865, NONA).

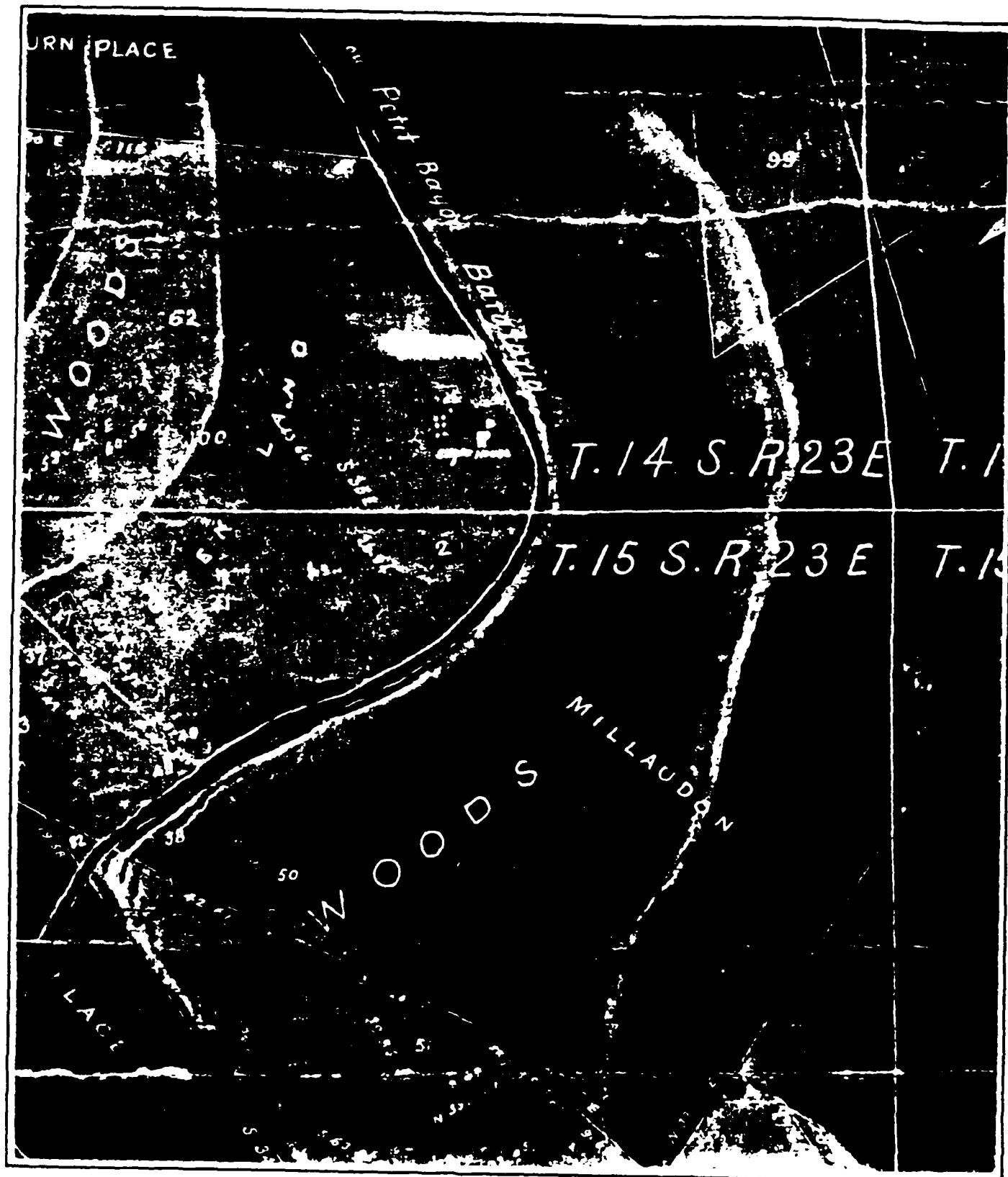


Figure 7. Excerpt from Plan of the Carter Plantation, the Property of Mr. Mehnert, Parish of Jefferson, by Ben McCleran, November 1, 1884, showing the Carter sugarhouse and residential buildings (Jefferson Parish Courthouse)

All promised well, when on the 11th April the levee gave way at the plantation of Mr. John Bell, a short distance above New Orleans, and on the opposite side of the river. Many efforts were made to stop the crevasse, and much expense was incurred, but all to no effect. For some time after this calamity many planters thought that they could protect themselves with back levees and I have no doubt that some would have succeeded to a certain extent, but after a great deal of labor and expense their efforts were rendered futile by another crevasse, which took place on the 2d May, on the plantation of Mrs. Labranche & Son, twenty-five miles above the city and the same side of the river as the "Bell Crevasse." All efforts to stop this break also proved futile, and the double calamity worked destruction together. From that moment a large number of planters, exposed to the course of the rushing waters, abandoned all hope of saving any portion of their crops. Had the break in the levee been alone confined to that at Bell's plantation the damage, in my opinion, would have been comparatively small, not extending further, perhaps, than Jefferson, Orleans, and Plaquemines; but when both these crevasses opened passages for the flow of immense bodies of water, the two streams tending towards each other, and finally combining in their work of destruction, their course involved all that rich section of the country situated between Bayou Lafourche and the Mississippi River, which was completely inundated by the waters, on their way to the Gulf. The water continued to rise and spread more and more every day, until their source, the Mississippi River itself, began to fall, carrying destruction to Cane, Corn, and other crops, not only of Lafourche Interior, but also of St. Charles, St. John the Baptist, and to some extent St. James and Assumption, and extending even to the back portions of the plantations in the Parish of Ascension. From a careful investigation of the matter I estimate the damage to the Sugar crop, resulting from the crevasses, to be equal to about 53,093 hghds. The value of other products it would be impossible for me to state (Champomier 1859:VII. VIII).

Laurent Millaudon was born in France in 1786. He went to New Orleans in 1802, becoming a successful sugar cane broker, as well as planter, and "for a while he was perhaps the richest man in Louisiana" (Tucker 1957:333). Estelle, the northernmost plantation on Bayou des Familles, and the adjacent acreage fronting of the Mississippi River, Front Place, were owned by Millaudon until 1870 (Figure 8).

Estelle Plantation

Contemporary sugar reports indicate that by 1850, both Front Place and Estelle plantations had steam powered mills in brick sugar houses with shingle roofs. In 1856, the mills were equipped with vacuum pan apparatus to reduce the cane juice to sugar, and a Rillieux apparatus was installed in the Estelle sugar house. By 1860, the thirty-five year old Millaudon owned 440 slaves living in 82 cabins 3,000 acres of improved land, and 8,000 acres of unimproved land, all valued at \$500,000.00. His farming implements were valued at \$10,000. He owned 150 asses, 80 oxen, 40 horses, 20 cows, 20 cattle, and 12 pigs, valued at \$18,000.00 (Menn 1964:129). At this time, the Millaudon plantations produced 10,000 bushels of corn, 300 bushels of Irish potatoes, 250 bushels of sweet potatoes, 1,000 hogsheads of sugar (weighing 1,000 pounds each), and 93,000 gallons of molasses per year. After the Civil War, Millaudon continued to add new improvements, such as centrifugals, to the mills, despite lower sugar yields (Table 2).

In 1869, Millaudon sold his vast holdings to Henry C. Millaudon (Augustin, May 29, 1869, NONA), who sold the Estelle and Front Place Plantations to A. B. Merrill in 1870 (Magner, Jan. 4, 1870, NONA). Merrill hired 140 Chinese laborers to work the former Millaudon fields under a three year contract which provided housing, rations, and \$14 a month. The experiment failed, however, and most of the Chinese laborers left by late 1871 (Swanson 1974:76, 96).

Merrill sold the plantations to the Ames brothers in 1872 (Fahey, March 1, 1872, NONA). The Ames did not plant sugar cane as far south as the study area. However, during the 1880s, only the Estelle sugar fields were yielding cane crops in the northern Barataria Basin region (Bouchereau 1880-1890). According to *King's Handbook of the United States* (1891:304), the Ames Brothers were among the first to connect their extensive portable railroad system to the existing state railroads to transport and load sugarcane.

Table 2

SUGAR PRODUCTION AT ESTELLE AND SOUTHSIDE PLANTATIONS
(Champomier 1844-1859; Bouchereau and Bouchereau 1868-1917)

<u>Year</u>	<u>Owner</u>	<u>Plantation</u>	<u>Hghds.</u>
1844	Laurent Millaudon		600
			805
1845	Laurent Millaudon		200
			236
1850	Laurent Millaudon	most lost by overflow	150
1851	Laurent Millaudon	(River sugar house)	328
	Laurent Millaudon	Middle Place (kept for planting)	----
	Laurent Millaudon	Estelle	200
1852	L. Millaudon	River sugarhouse [overflowed]	258
	Laurent Millaudon	Middle Place [kept for planting - burnt and overflowed]	----
	L. Millaudon	Estelle [suffered]	606
1853	L. Millaudon	River sugarhouse	241
	Laurent Millaudon	Middle Place [kept for planting]	----
	L. Millaudon	Estelle	545
1854	L. Millaudon	River Sugar-House	965
	Laurent Millaudon	Middle Place	1165
	L. Millaudon	Estelle	----
1855	L. Millaudon	River Sugar-House	344
	L. Millaudon	Estelle Plantation	366
1856	L. Millaudon	River Sugar-House	400
	L. Millaudon	Estelle Pl.	400
1857	L. Millaudon	River Sugar-House	150
	L. Millaudon	Estelle Pl.	150
1858	L. Millaudon	River Sugar-House	485
	L. Millaudon	Estelle Pl.	466
1859	L. Millaudon	River Sugar House	----
	L. Millaudon	Estelle Pl. cr'v'ss	----
1869	Est. L. Millaudon	Front Place	151
1870	Estate L. Millaudon	Front Place	280
	do do	Estella	N.Y.
1871	A.B. Merrell & Co.	Front Place	327
	do	Estella	260
1872	A.B. Merrell & Co.	Southside	370
		Estelle Barataria	170
1873	OA & FM Ames	Southside	260
	OA & FM Ames	Estelle	140
1874	OA & FM Ames	Southside	170
	OA & FM Ames	Estelle Barataria	201
1875	OA & FM Ames	Southside	
		Estelle	720
1876	OA & FM Ames	Southside	
		Estelle	794
1877	OA & FM Ames	Southside	
		Estelle	912
1878	OA & FM Ames	Southside	
		Estelle	602

<u>Year</u>	<u>Owner</u>	<u>Plantation</u>	<u>Hqhd.</u>
1879	OA & FM Ames	Southside	1,133
		Estelle	---
1880	OA & FM Ames	Southside	
		Estelle	
1881	OA & FM Ames	Southside	824
		Estelle	----
1882	OA & FM Ames	Estelle	7,660
1883	OA & FM Ames	Southside	1,594
1884	OA & FM Ames	Southside	985
1885	OA & FM Ames	Southside	748
1886	OA & FM Ames	Southside	1,435
1887	OA & FM Ames	Southside	488
1888	OA & FM Ames	Southside	1,268
1889	OA & FM Ames	Southside	1,423
1890	OA & FM Ames	Southside	----
			1,008
1891	OA & FM Ames	Southside	N.Y.
1893	OA & FM Ames	Southside	1,460,000 lbs.
1894	OA & FM Ames	Southside	2,094,884 lbs.
			2,094,884 lbs.
1895	OA & FM Ames	Southside	2,680,244 lbs.
1896	OA & FM Ames	Southside	2,252,046 lbs.
1897	Southside Planting Co.	Southside	2,698,150 lbs.
1898	Southside Planting Co.	Southside	3,448,527 lbs.
1899	Southside Planting Co.	Southside	2,533,385 lbs.
1900	Southside Planting Co.	Southside	2,280,495 lbs.
1901	Southside Planting Co.	Southside	3,078,648 lbs.
1902	Southside Planting Co.	Southside	2,524,377 lbs.
1903	Southside Planting Co.	Southside	2,710,605 lbs.
1904	Southside Planting Co.	Southside	2,761,196 lbs.
1905	Southside Planting Co.	Southside	4,111,929 lbs.
1906	Southside Planting Co.	Southside	3,289,413 lbs.
1907	Southside Planting Co.	Southside	1,244,160 lbs.
1908	Southside Planting Co.	Southside	1,800,000 lbs.
1912	Southside Planting Co.	Southside	1,567,145 lbs.
1913	Southside Planting Co.	Southside	N.Y.
1914	Southside Planting Co.	Southside	----
1915	Southside Planting Co.	Southside	----
1916	Southside Planting Co.	Southside	----
1917	Southside Planting Co.	Southside	----

Twentieth Century Subdivisions

The Ames Family holdings were incorporated into the Southside Planting Company in 1897 (Ker, July 15, 1899, Jefferson Parish Courthouse). During this time, the Estelle property began to be subdivided for small truck gardeners. Charles Brown, who was contracted in 1899 to run the Estelle Plantation property, bought out many of the failing small plantations further down Bayou des Familles, and he continued to plant and bring the cane to Estelle for milling. During Brown's tenure, the plantation's portable railroad tracts were extended to the fields of Christmas Plantation, south of the study area. By the First World War, sugar cane production at Estelle, including the study area, had been abandoned.

After World War II, the study property on the western side of Bayou des Familles was the site of a small scale logging operation. In 1946, William Harvey Moynana and Emmett D. Brown purchased land from John E. Parker and Clarence J. Perez, including Section 2, in Township 15S, R24E for purposes of cutting and selling timber (COB 229, Folio 270, JPCH). To process the felled timber, a portable sawmill was erected along the western edge of Bayou des Familles directly north of the present V-levee. Parker and Perez bought this land from the Citizens Bank of Louisiana in 1936 (COB 109, Folio 45, JPCH). According to V.H. Sonderegger (1930), who was a leading spokesman and writer on the Louisiana lumber industry, illegal small scale logging and sawmilling were common practice during this time:

In Louisiana, there is a decided difference in the acreage between the land shown on the tax records and the land owned by the sawmill operators.... A great many of these lands is being sold at low prices to portable sawmills, who strip the area for the credit and manufacture the lumber badly and dump it on the market for any kind of price depending on how the bank account stands (Sonderegger 1930:35).

Figure 9 depicts the sawmill and buildings in 1951. The sawmill operation in the study area was abandoned by the early 1950s (Percy Prestenbach, Sr., personal communication 1989).

Summary of Historic Land Use in Project Area

Land use in the Bayou des Familles-Barataria Basin study region was dependant upon the amount of dry acreage. Logging and cattle raising were economic activities suitable to an area where high water was a continual threat. Small scale agriculture was undertaken as a supplemental subsistence activity. The Isleños who settled on the east bank of Bayou des Familles between 1779 and 1794 were not able to overcome the constant flooding of the Bayou and the devastating hurricanes. As a result, the Isleño settlement was completely abandoned by 1804. During the first half of the nineteenth century, ownership of the project area was disputed by different claimants. Court documentation concerning these land disputes indicates that the study property was not being used during this time. Laurent Millaudon acquired the project area before the Civil War. However, this wealthy sugar planter did not use the land for planting, possibly because of high water. In 1857, the woods were cleared on the western side of Bayou des Familles for the purpose of cultivating sugar cane, but repeated flooding forced the abandonment of large scale agriculture in the study area by 1875. After World War II, a portable sawmill was operated on the western side of Bayou des Familles. This sawmill was abandoned in the 1950s.

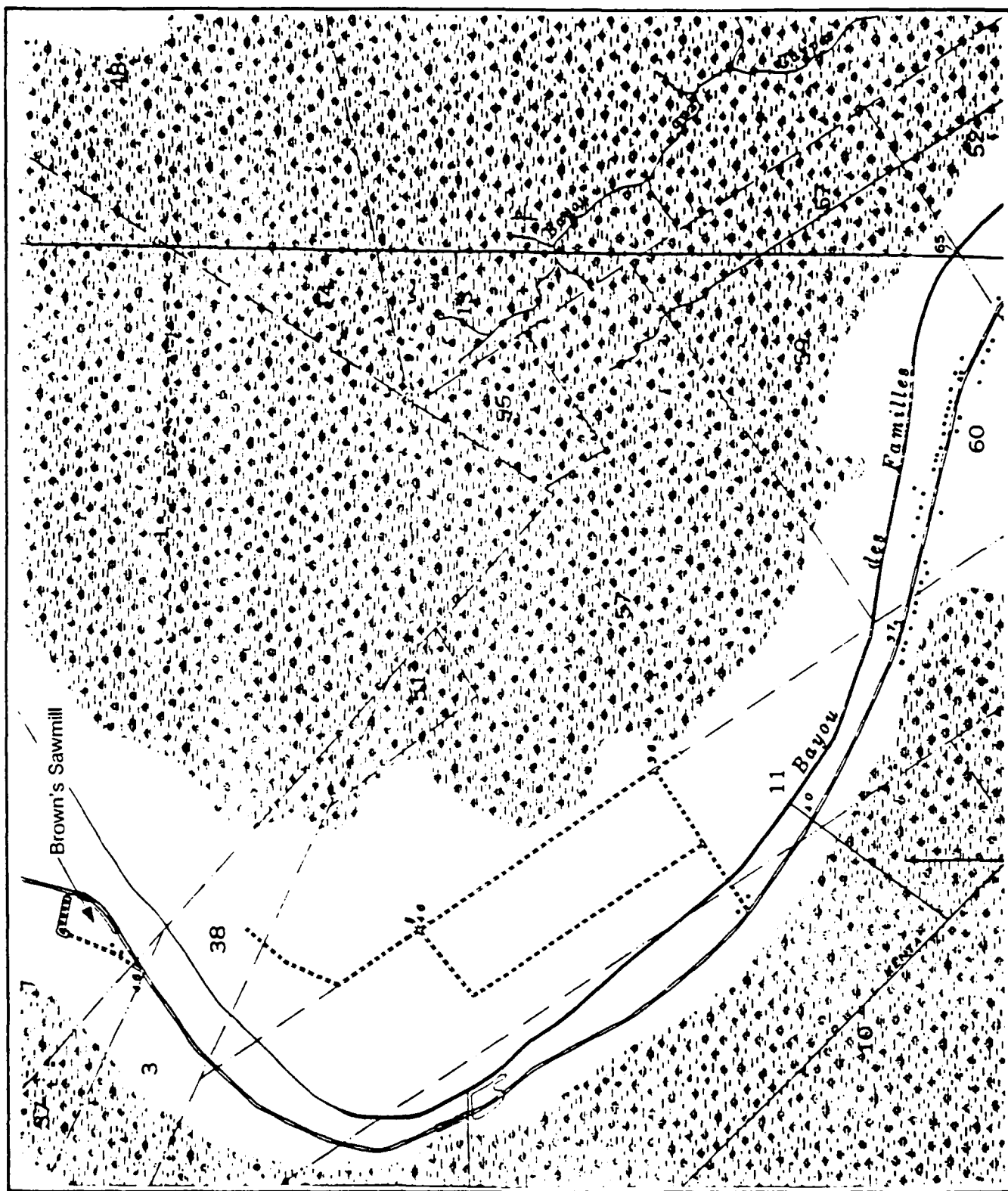


Figure 9. Excerpt from the 1951 USGS 7.5 minute series topographic quadrangle, Bertrandville, Louisiana, showing Brown's sawmill road and buildings.

CHAPTER VI

RESEARCH DESIGN AND FIELD METHODOLOGY

The cultural resources survey of the V-levee portion of the West Bank Hurricane Protection Project was designed to identify and to assess the significance of all cultural resources located within the project area. This entailed a pedestrian survey, supplemented by systematic shovel testing of the project area. During the survey, the ground surface was examined for evidence of cultural remains; shovel testing was conducted along linear transects, each 20 m apart and parallel to the axis of the V-levee. Shovel tests were placed at 50 m intervals along each transect; shovel tests of adjacent transects were offset. Each shovel test was approximately 30 cm in diameter, and was excavated to sterile subsoil. The excavated soils were screened through 0.25 inch wire mesh. Recovered artifacts were bagged and labeled by shovel test number and by depth. Stratigraphic soil profiles of all shovel tests were recorded, and all shovel tests were backfilled. A total of 1382 shovel tests were excavated during this stage of work. Two archeological sites (16JE217 and 16JE218) were identified and recorded; the location of each was plotted on a USGS topographic map. Each site also was photographed, and field maps depicting visible features of both sites were drawn.

Additional testing was conducted at one potentially significant site (16JE218). A grid system was placed across the site and a site datum was established at the south end of the site (N100, E100). This entire site was located within the northeast quadrant as defined by the Cartesian Coordinate System. Forty-three shovel tests were placed within the site to determine its boundary, soil stratigraphy, archeological integrity, density of cultural material, and chronological placement. These shovel tests were supplemented with the excavation of twelve two-inch Dutch auger tests; each was excavated to 150 cm, to verify the depth of the cultural deposits. The excavated soils were screened and examined for cultural materials. In addition, the stratigraphy of each shovel and auger test was recorded using the textural triangle and Munsell Soil Color Charts; each was plotted on the site plan.

Six 1 x 1 m test excavation units were placed within the site. These units were excavated by natural stratigraphy, photographed, and profiled. Stratigraphic profiles were drawn of all units, and descriptive notes were recorded. Excavated units were backfilled prior to the completion of fieldwork.

CHAPTER VII

RESULTS OF THE FIELD INVESTIGATIONS

Introduction

In accordance with the research design, the entire project area was examined for cultural deposits using pedestrian survey and shovel testing. Two archeological sites, two landscape features, and three modern refuse loci were observed and recorded. The first of the two sites, Brown's Sawmill (16JE217), is the remains of a mid-twentieth century lumber operation. The second site (16JE218) is a prehistoric shell midden. The landscape features included agricultural drainage ditches and the remains of the old Barataria Road. The modern refuse loci represent a small deposit formed during construction of the V-levee canal, an extensive trash dump, and a modern building with refuse near a drill hole. These loci are described below.

Brown's Sawmill (16JE217)

Brown's Sawmill is located on the natural levee of Bayou des Familles, just west of LA 45, and north of the Jean Lafitte National Historical Park, Barataria Unit property boundary (Figure 1). The site is covered with mature woods, including palmettos, sweet gum, tupelo gum, and some oak and willow. It overlies nineteenth century drainage ditches. The site was identified and recorded during the initial pedestrian survey and shovel testing stage of work. Four components of the site were observed, including a dry pond, a burned earth and refuse pile, a pile of sawdust, and a shell and gravel roadway (Figure 10). The dry pond, situated toward the west end of the site, is 30 - 35 m in diameter, approximately 1.5 m deep, and it is surrounded by a 1.5 m high rim. No shells or artifacts were observed on the pond rim, although the pond basin contained a considerable amount of modern refuse.

About 30 m southeast of the pond is an irregular pile of burned earth and twentieth century industrial refuse associated with the sawmill operation. It is approximately 11 m north-south by 8 m east-west, and it rises 25 - 30 cm above the surrounding terrain. Iron cable, long chisels, corrugated sheet iron, wire nails, bottle glass, burned earth, and pea gravel were observed on the ground surface. Several shovel tests were placed across the pile to confirm its age, extent, and stratigraphy. This stratigraphy consists of a 25 - 40 cm layer of very dark grayish brown silt and dark gray silt mixed with strong brown burned earth nodules, pockets of charcoal, and cultural debris. The latter includes logging equipment debris, wire nails, bottle glass, bone, gravel, and *Rangia cuneata* shell fragments. These historic fill deposits rest on dark gray silty clay mottled with dark grayish brown silty clay and dark yellowish brown silty clay. This pile may be the remains of a small frame building erected at the site, although this interpretation has not been confirmed.

The pile of burned sawdust and debris is located about 30 m northeast of the pond. It measures 14 m north-south by 16 m east-west and rises 1.0 - 1.3 m above the surrounding terrain. It is partially surrounded, to the north and east, by a 2 - 3 m wide berm. The pile is covered with charcoal, ash, and burned earth deposits. A shovel test placed in the pile confirmed that these materials extend to a depth of at least 55 cm below surface. While few artifacts were observed, wire nails were recovered from the shovel test. The shell and gravel road passes through the center of the site, between the dry pond and the two piles. Both ends of this road join LA 45. During the sawmill's operation, the road provided ready access to the mill.

Mr. Percy Prestenbach, Sr., of Crown Point, Louisiana, worked at this sawmill after World War II. According to Prestenbach, it was owned by Emmett D. Brown and it was established shortly after World War II with surplus military equipment such as the sawmill itself, a bulldozer, and several trucks. The pond was excavated with a bulldozer; it was maintained to lower fire insurance costs. A large water pump was placed on the rim of the pond to combat fires, although none occurred during the mill's operation. The sawmill was located near the sawdust pile, parallel to the shell and gravel road. A few small frame utility sheds also were located at the site. The cypress and hardwoods processed at the sawmill were dragged there with

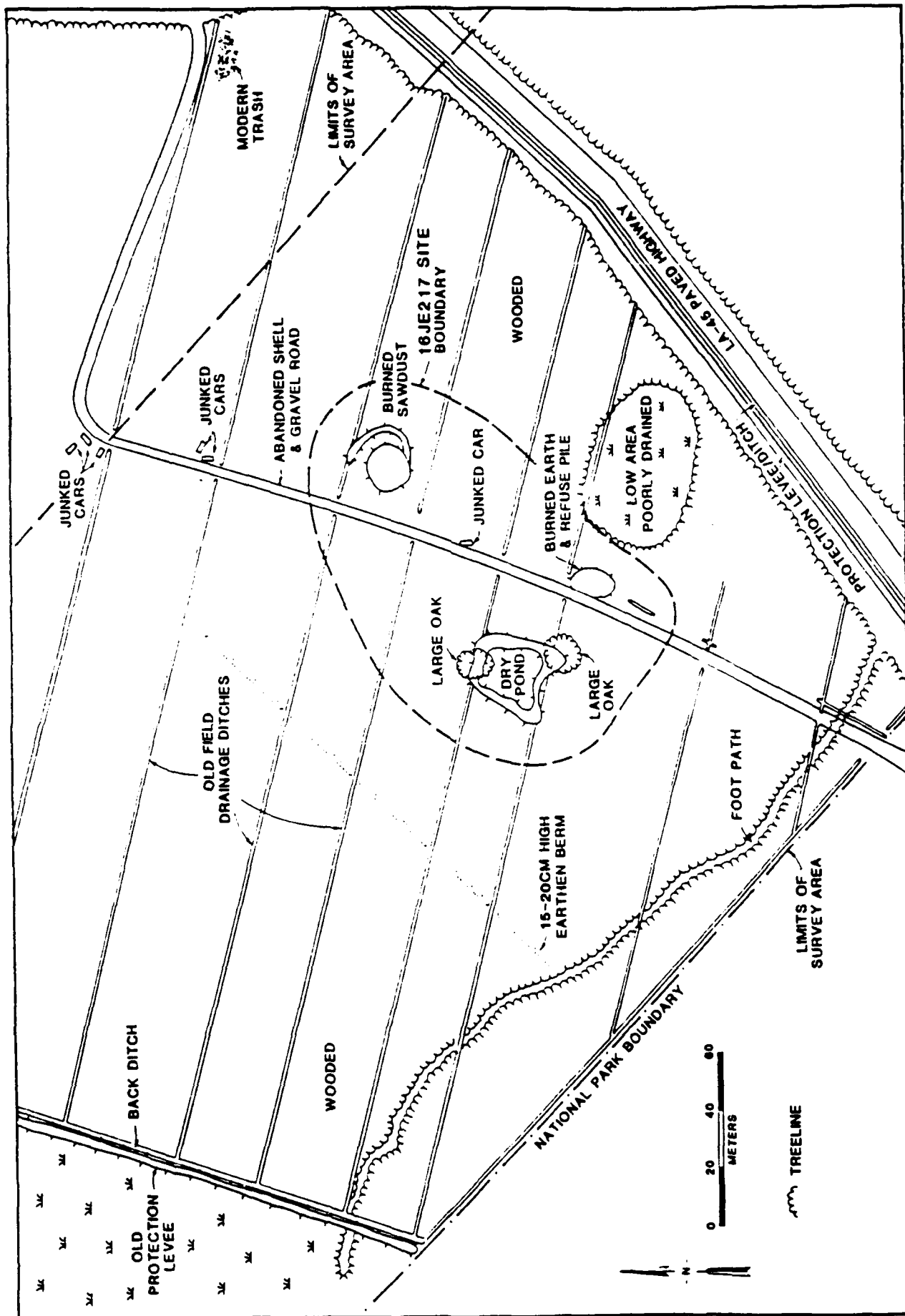


Figure 10. Brown's Sawmill (16JE217) site plan, with agricultural drainage ditches.

bulldozers, or delivered on trucks (Percy Prestenbach, Sr., personal communication 1989).

Site 16JE218

Site 16JE218 is located approximately 40 m southeast of Bayou des Familles and 25 m northeast of the V-levee canal (Figure 1). It is approximately 27 m north-south by 33 m east-west, and it covers approximately 0.2 acres (Figure 11). The site is covered with palmettos, sweet gum, tupelo gum, oak and willow, and other natural levee vegetation. The site was located during the pedestrian survey and shovel testing of the project area. Numerous *Rangia cuneata* shell fragments were observed on a small ridge parallel to Bayou des Familles, approximately 50 m from the bayou. A shovel test placed at the site during the initial testing yielded 19 aboriginal pottery sherds. In addition, a 12 cm thick *Rangia cuneata* shell midden deposit was observed.

Additional testing was conducted at the site to delineate its horizontal and vertical extent, to ascertain its cultural components, to determine the archeological integrity of the site, and to evaluate the site's research potential. Forty-two additional shovel tests and 12 auger tests were placed across the site (Figure 12). These tests demonstrated that most of the site is covered with a 3 - 10 cm thick humus layer, which rests on a 10 - 14 cm thick shell midden deposit. Under the shell midden is a 10YR 4/1 dark gray silty clay stratum of varying thickness. This stratum overlies culturally sterile natural levee deposits. Outside of the site boundaries, the soil deposits included a humus layer similar to that covering the site, above natural levee deposits. The site extended 2 - 5 m beyond the shell midden.

Six 1 x 1 m excavation units were placed across the site. One unit was placed in each quadrant, while the remaining two units were placed over the north edge of the shell midden (Figure 11). These units are discussed below; the artifacts recovered from the units are discussed more fully in Chapter VIII.

Unit N120, E103 was placed in the southeast quadrant, near the highest point of the site. Four strata were identified in unit N120, E103. Stratum I was a 10YR 2/1 black silty loam that contained a few pottery fragments and a moderate quantities of shell (Figure 13). Stratum II, the packed shell midden deposit, was a 10YR 3/1 very dark gray clayey silt; it contained numerous pottery fragments and small bone fragments. Stratum III consisted of a 10YR 4/1 dark gray silty clay from which a few shell fragments, pottery, and charcoal were recovered. Stratum IV was a mixture of 10YR 5/2 grayish brown silty clay and 10YR 4/6 dark yellowish brown silty clay. Except for the Stratum III/Stratum IV interface, Stratum IV was culturally sterile. Units N117, E93, N125, E108, and N126, E96 were similar in profile to Unit N120, E103. Each unit was placed within the shell midden. No features, other than the shell midden, were encountered. These units are summarized below.

Unit N117, E93 (Figure 14) was located in the southwest quadrant of the site. Stratum I contained 20 cm of 10YR 3/2 very dark grayish brown silty loam and yielded a few pottery fragments. Stratum II was a 6 - 12 cm thick shell midden deposit containing 10YR 4/1 dark gray clayey silt, from which several sherds and small bone fragments were recovered. The shell midden in this unit was somewhat irregular in thickness, and extends deeper in the southeast section of the unit. Stratum III, 8 - 15 cm of 10YR 4/1 dark gray clay, contained shell fragments, ceramic sherds, and small bones. Stratum IV was comprised of 10YR 5/3 brown very fine silty clay, 10YR 5/4 and 10YR 5/6 yellowish brown very fine silty clay, and 10YR 4/1 dark gray clay. Stratum IV did not contain any shell or cultural debris.

Unit N125, E108 was placed in the northeast quadrant of the site. Its stratigraphic sequence was very similar to Unit N120, E103, six meters to the southwest. Stratum I was a five cm thick deposit of 10YR 2/1 black silty loam. No prehistoric artifacts were recovered from Stratum I. Stratum II, the shell midden, was 8 - 10 cm thick, within a 10YR 3/1 very dark gray clayey silt matrix; pottery and bone fragments were recovered. Stratum III was 4 - 7 cm of 10YR 3/1 very dark gray silty clay that contained a few shells. Stratum IV was 20 cm thick; it was composed of 10YR 5/3 brown silty clay mottled with 10YR 4/6 dark yellowish brown silty clay. No artifacts were recovered from the lower two strata.

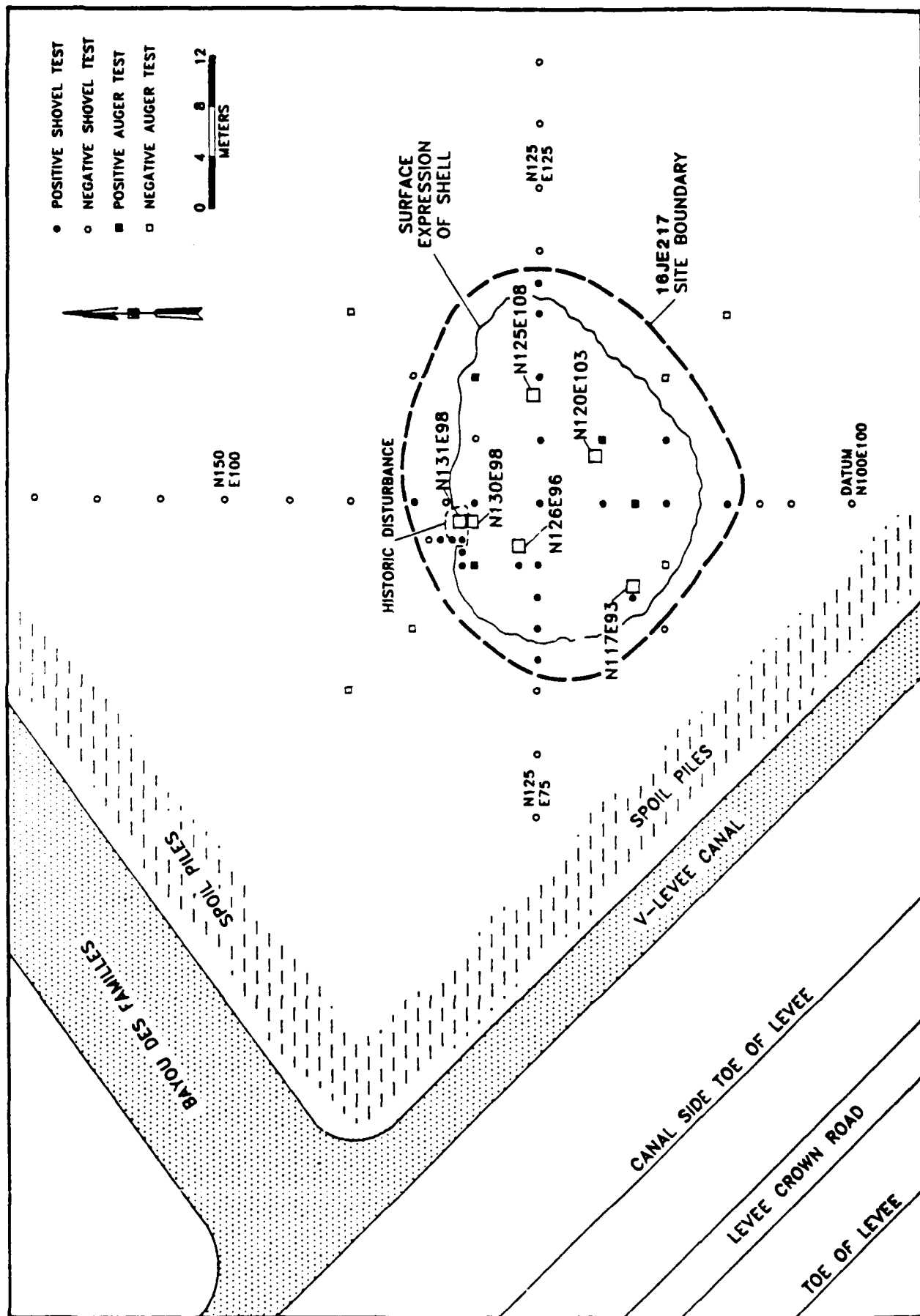


Figure 11. 16JE218 site plan.

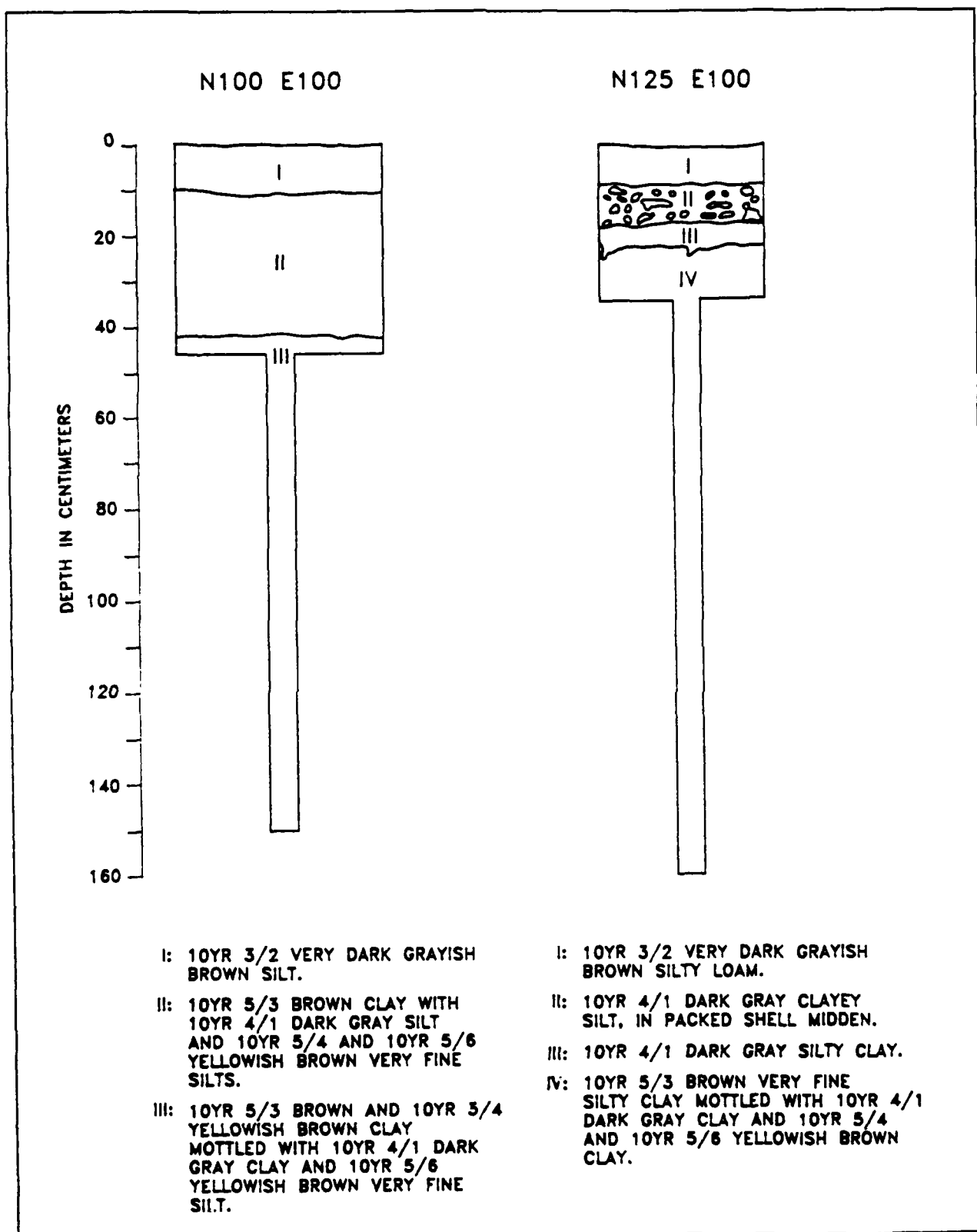
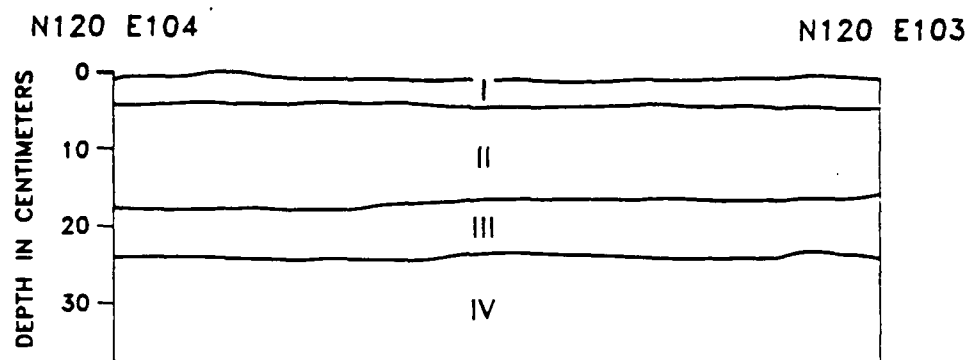
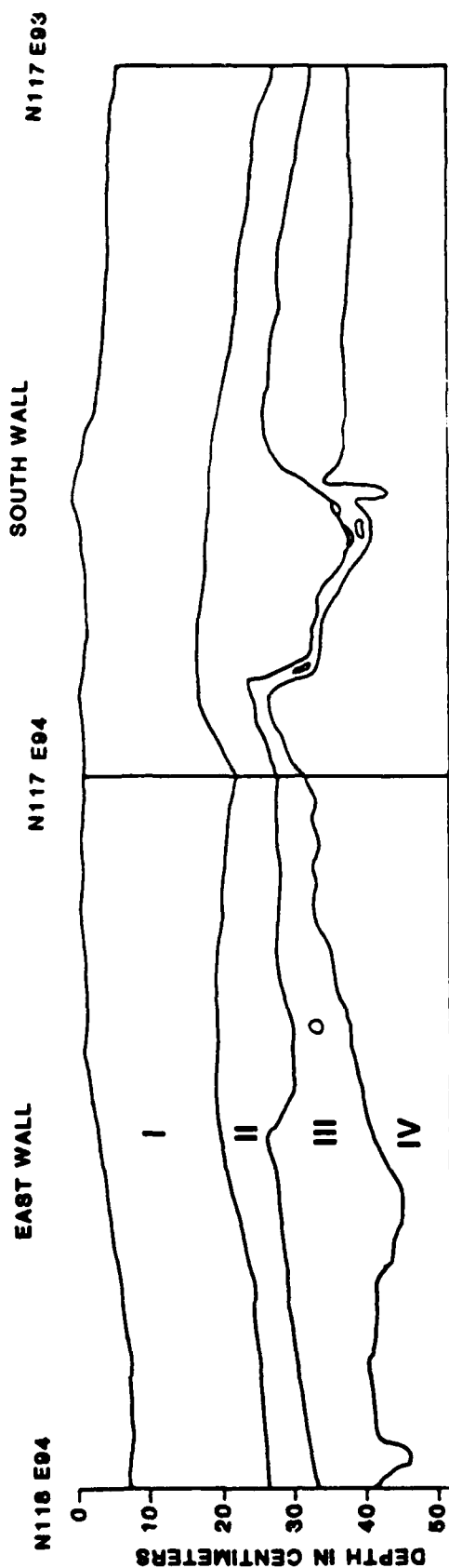


Figure 12. Auger test profiles at 16JE218.



- I: 10YR 2/1 BLACK SILTY LOAM, WITH SOME SHELL.
 II: 10YR 3/1 VERY DARK GRAY CLAYEY SILT, IN PACKED SHELL MIDDEN.
 III: 10YR 4/1 DARK GRAY SILTY CLAY WITH SOME SHELL.
 IV: MIXTURE OF 10YR 5/2 GRAYISH BROWN SILTY CLAY, AND 10YR 4/6 DARK YELLOWISH BROWN SILTY CLAY.

Figure 13. Stratigraphic profile of Unit N120, E103 at 16JE218 facing north.



- I: 10YR 3/2 VERY DARK GRAYISH BROWN SILTY LOAM WITH SOME SHELL.
- II: 10YR 4/1 DARK GRAY CLAYEY SILT IN PACKED SHELL MIDDEN.
- III: 10YR 4/1 DARK GRAY CLAY WITH SOME SHELL AND BONE.
- IV: 10YR 5/3 BROWN VERY FINE SILTY CLAY MOTTLED WITH 10YR 4/1 DARK GRAY CLAY, AND
10YR 5/6 YELLOWISH BROWN VERY FINE SILTY CLAY.

Figure 14. Stratigraphic profile of Unit N117, E93 at 16JE218 facing east and south.

Unit N126, E96 (Figure 15) was excavated in the northwest quadrant of the site, in the portion from which shovel testing produced the greatest number of pottery fragments. Stratum I was 15 - 18 cm of 10YR 2/1 black silty loam; several ceramic sherds, bone fragments, and a moderate quantities of shell were collected. Stratum II, a 9 - 12 cm thick shell midden deposit, was composed of 10YR 3/1 very dark gray clayey silt. It contained numerous sherds, bone fragments, and charcoal. Stratum III, a 6 - 8 cm thick deposit of 10YR 3/1 very dark gray silty clay, yielded a single sherd. Stratum IV, 10YR 4/1 a dark gray silty clay, and Stratum V, a mixture of 10YR 5/2 grayish brown silty clay, 10YR 4/6 dark yellowish brown silty clay, and some 10YR 4/1 dark gray silty clay, did not contain any cultural debris.

On the basis of data obtained from these four units placed within the interior portion of Site 16JE218, the basic depositional sequence for the site is interpreted as follows. Strata IV and V are culturally sterile deposits of natural levee sedimentation predating the prehistoric occupation of the site. Stratum III was topsoil (a buried A, or Ab) during the initial site occupation; some mixing of this old topsoil with the shell midden deposits has occurred, as evidenced by the shell, bone, and artifacts recovered from Stratum III. The shell midden, Stratum II, was formed during the aboriginal occupation of the site. Stratum I is a topsoil layer (A) which caps the shell midden, and contains some artifacts and shells from the top of the shell midden.

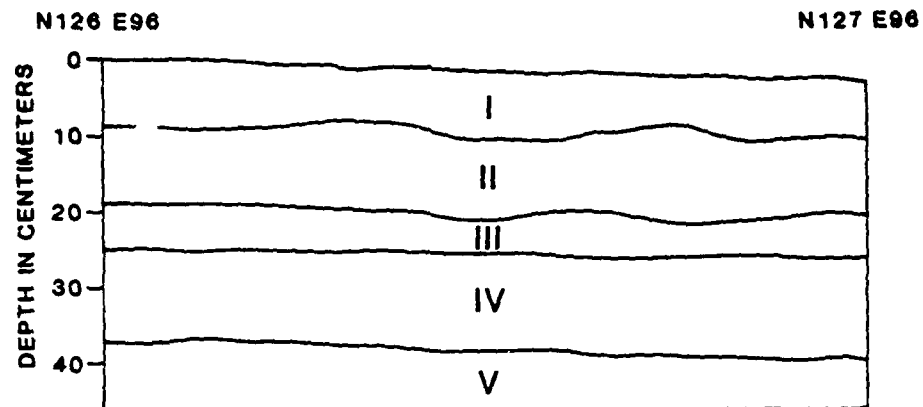
The remaining two excavation units, N130, E98 and N131, E98, were placed towards the north end of the site, overlapping the edge of the shell midden. Nine strata, consisting of five basic developmental sequences, were located in these two adjacent units (Figure 16). These developmental sequences will be discussed from the most recent deposits to the earliest. Strata I, II and III were located in Unit N131, E98, and along the south 20 cm of Unit N130, E98. They form a 20 - 30 cm thick deposit of 10YR 4/1 dark gray silty clay and 10YR 3/1 very dark gray silty clay containing numerous shells along the south end. These strata extend to the ground surface, cutting through the normal surface stratum which covers the site. In addition to some aboriginal pottery, several fragments of nineteenth or early twentieth century green bottle glass were recovered from these strata.

Stratum IV was located within Unit N130, E98, it extends from the ground surface to the top of the shell midden deposit. This 10YR 3/2 very dark grayish brown very fine silty clay yielded some shell fragments, a few prehistoric pottery fragments, and a fragment of green bottle glass. This was the topsoil stratum that covered the shell midden. Stratum V, present only in Unit N130, E98, was the shell midden itself. This somewhat irregular deposit, which was disturbed by root activity, tapers downward from the north to the south side of the unit, where it ended. Several prehistoric pottery fragments were recovered from the deposit. This stratum forms the northern edge of the shell midden.

Stratum VII 10YR 4/1 was a dark gray clay which lies beneath the shell midden throughout the site. In addition to shell fragments, a few pottery fragments were recovered from this stratum. It was disturbed by Strata VI and VII, which were formed by tree roots, and by Stratum VIII, which includes charcoal from a burned tree root. Stratum IX was basal; it was comprised of culturally sterile natural levee deposits. No shell or artifacts were recovered from this stratum, except for shell recovered from within a few filled crawfish holes.

Several shovel tests were placed at one meter intervals in the vicinity of these two units to determine the extent of the nineteenth or early twentieth century disturbance. While no historic artifacts, other than a modern bullet, were recovered from these shovel tests, two shovel tests, both situated one meter west of Unit N131, E98, yielded soil matrices similar to the observed historic disturbance in the adjacent units. Based on data from these shovel tests, the historic disturbance measures approximately two meters north-south by three meters east-west.

While only 20 - 25 per cent of the historic deposit was excavated, there is no evidence that it contains more than mixed prehistoric deposits and a small quantity of bottle glass. No in situ remains or diagnostic historic artifacts were located. Because of the small quantity of artifacts, and the dearth of in situ deposits and associated historic remains, insufficient archeological evidence is present to positively identify the origin of this historic deposit.



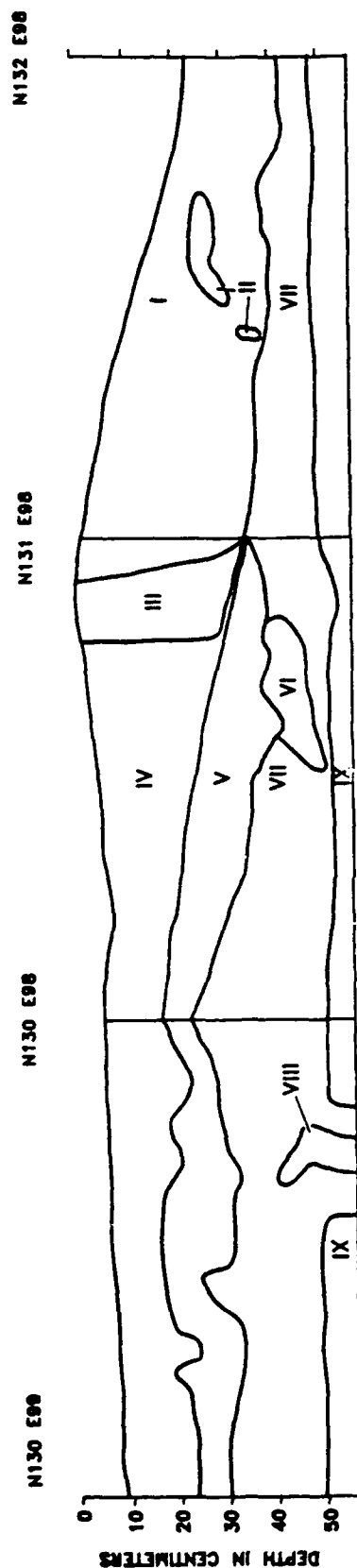
- I: 10YR 2/1 BLACK SILTY LOAM WITH SOME SHELL.
- II: 10YR 3/1 VERY DARK GRAY CLAYEY SILT IN PACKED SHELL MIDDEN.
- III: 10YR 3/1 VERY DARK GRAY SILTY CLAY WITH SOME SHELL.
- IV: 10YR 4/1 DARK GRAY SILTY CLAY.
- V: MIXTURE OF 10YR 5/2 GRAYISH BROWN SILTY CLAY, 10YR 4/6 DARK YELLOWISH BROWN SILTY CLAY, AND SOME 10YR 4/1 DARK GRAY SILTY CLAY.

Figure 15. Stratigraphic profile of Unit N126, E96 at 16JE218 facing west.

UNIT N130 E98
PROFILE, FACING SOUTH

UNIT N130 E98
PROFILE, FACING WEST

UNIT N131 E98
PROFILE, FACING WEST



- I: 10YR 4/1 DARK GRAY SILTY CLAY, WITH ORGANICS AND SOME SHELL.
- II: 2.5Y 5/2 GRAYISH BROWN VERY FINE SILT, WITH 10YR 5/6 YELLOWISH BROWN VERY FINE SILTY CLAY.
- III: 10YR 3/1 VERY DARK GRAY SILTY CLAY, WITH MODERATE TO DENSE SHELL.
- IV: 10YR 3/2 VERY DARK GRAY SILTY CLAY, WITH ORGANICS AND SOME SHELL.
- V: 10YR 4/1 DARK GRAY SILTY CLAY, WITH DENSELY PACKED SHELL (MIDDEN).
- VI: 10YR 3/1 VERY DARK GRAY CLAY, MOTTLED WITH 10YR 4/6 DARK YELLOWISH BROWN VERY FINE SILT (ROOT DISTURBANCE).
- VII: 10YR 4/1 DARK GRAY CLAY, MOTTLED WITH 10YR 5/6 YELLOWISH BROWN VERY FINE SILT.
- VIII: 10YR 2/1 BLACK CHARCOAL, SURROUNDED BY 10YR 3/1 VERY DARK GRAY CLAY (BURNED ROOT).
- IX: 10YR 5/3 BROWN VERY FINE SILTY CLAY, MOTTLED WITH 10YR 5/4 AND 10YR 5/6 YELLOWISH BROWN VERY FINE SILT, AND 10YR 4/1 DARK GRAY CLAY.

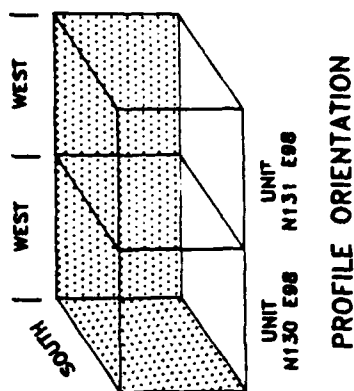


Figure 16. Stratigraphic profile of Units N130, E98 and N131, E98 at 16JE218 facing south and west.

Based on the archeological evidence, then, Site 16JE218 is a shell midden site located adjacent to Bayou des Familles. It probably served as a seasonal campsite. There was no evidence of structural remains or of other prehistoric features such as burials. While overall the site has good archeological integrity, there has been some disturbance to the midden, as evidenced by the historic disturbance in Units N130, E98 and N131, E98, and by visible armadillo holes.

Agricultural Drainage Ditches

A series of shallow agricultural ditches was observed and recorded at the west end of the project area. These parallel drainage ditches were 29 - 41 m apart; they emptied into a property edge ditch along the Jean Lafitte National Historical Park, Barataria Unit property boundary, and into a ditch near the backswamp (Figure 10). The ditches apparently drained a sugar field within Carter Plantation and were constructed shortly after the Civil War by John H. Carter. The plantation was in operation until 1875, when the Citizens' Bank of Louisiana foreclosed on Carter's property. This foreclosure effectively ended the agricultural use of the fields.

A linear embankment, approximately one meter high, once extended along the west side of the back ditch. This levee provided protection for the agricultural fields, and later the sawmill, from inundation during periods of high water. This embankment has been replaced with the current small protection levee situated along the westside of LA 45 (Percy Prestenbach, Sr., personal communication 1989).

Barataria Road Remains

A segment of the old Barataria Road was located about 225 m southeast of Bayou des Familles (Figure 1). A 3 - 4 m wide roadbed, a ditch, and a 1.25 m high berm were noted. The roadbed is near the eastern edge of the natural levee. The area currently is covered with palmettos, sweet gum, tupelo gum, and cypress.

The Barataria Road originally was constructed in the early eighteenth century on the west side of Bayou des Familles. Until the mid-nineteenth century, it remained the primary road along the natural levee, although it was maintained inconsistently, with periods of repair and disrepair. By the late nineteenth century, it had been replaced by a new road on the west side of Bayou des Familles (Swanson 1988:241-246). While most of the road has been abandoned for a century, segments of the road, such as that portion within the project area, still are visible.

Modern Refuse Loci

Three loci of modern refuse were identified along the east side of the project area, near the V-levee canal (Figure 1). These three loci, designated Ba-1, Ba-2, and Ba-7, are summarized below.

Ba-1

Locus Ba-1, identified during the initial pedestrian survey and shovel testing of the project area, is located toward the northeast end of the 30 degree segment of the V-levee canal. It is within a drained backswamp hardwood forest, about 10 m west of the canal. A small *Rangia cuneata* shell scatter, about two meters in diameter, was observed adjacent to a shallow rectangular depression. This 1 x 4 m depression perpendicular to the V-levee canal has a small mound of dirt at the canal end. A shovel test placed within the shell scatter yielded a fragment of clear modern bottle glass, mortar, charcoal, and shell fragments in the upper 10 cm, with undisturbed soil deposits underneath. Eight additional shovel tests placed at two and three meter intervals in the cardinal directions produced no evidence of archeological deposits or cultural refuse.

This locus probably was formed during the construction of the V-levee and canal. Based on the presence of modern bottle glass and pea gravel in the shell scatter, the deposit can be assigned a twentieth century date. The configuration of the rectangular depression adjacent to the shell scatter indicates excavation by heavy machinery used extensively during construction of the nearby V-levee and canal. Also, the small size of the deposit and small quantity of associated cultural debris suggest that deposits at Ba-1 were formed rapidly rather than over an extended period.

Ba-2

Locus Ba-2 is located just west of the V-levee canal, near the southwest corner of Township 14S, Range 24E (Figure 1). It is in a drained freshwater marsh covered with reeds and grasses, with a secondary growth hardwood forest at its southeast margin. The drained marsh area burned within the past year.

Ba-2 was identified and recorded during the initial pedestrian survey and shovel testing of the project area; it is an area of an approximately 100 m diameter that contains modern refuse spread across the ground surface and in the upper 25 - 40 cm. This refuse included numerous beverage cans with both pull-tab and the current push-top openings, modern beverage bottles, rubber gloves, cowboy boots, wire spikes, boards, a 75th anniversary Dixie Beer token (1982), a scatter of *Rangia cuneata* shells, and other debris. Near the center of the locus, at the edge of the woods, a series of modern wood pilings is situated in four parallel rows within an 8 x 17 m area. These pilings do not exhibit evidence of subsequent construction, although many cut boards are present in the vicinity. The archeological evidence indicates that Ba-2 was formed during the late 1970s and early 1980s. It consists of a mixture of commercial debris and job-related refuse such as beverage containers.

Ba-7

Locus Ba-7, also located and defined during the initial testing, is situated directly across the V-levee canal from the Estelle Pumping Station, at the northeast end of the project area (Figure 1). It is located north of a 450 m long drill hole canal, with some remains just south of that canal. The locality is within a drained freshwater marsh, and it is covered with reeds and grasses. Components of Ba-7 include vacant stables and a running yard, a trash dump containing modern car and truck parts, galvanized metal, timbers, window screening, a metal tank, piping, and PVC tubing. Just south of the drill hole canal, there also are several large iron pipes. A bridge spans the V-levee canal near the stables and the Estelle Pumping Station. A large clearing west of the stables is used as a skeet range. Much of the area on either side of the drill hole canal has been disturbed by canal construction. There is no evidence of archeological deposits in the area.

The modern refuse at Ba-7 reflects industrial use of the property over the past few decades. The trash dump, located near the drill hole canal, contained industrial debris. In addition, the large pipes on the south side of the drill hole canal were used either within the drill hole complex, or by the Estelle Pumping Station across the V-levee canal.

Recreational use of the area is evidenced by the stables and the skeet range. Mr. William J. Reed stated that a recreational hunting camp, including the stables, occupied the location, probably during the 1970s. Most of it was razed because of vandalism, and the stables were abandoned. These stables probably will be destroyed within the next few years to accommodate improvement of the skeet range (William J. Reed, Estelle Pumping Station, personal communication 1989).

Summary

Field investigations resulted in the identification of two archeological sites, two landscape features, and three modern refuse loci. One of the archeological sites Brown's Sawmill (16JE217) was the remains of a mid-twentieth century portable sawmill operation. The other (16JE218) was a prehistoric shell midden. The landscape features include the remains of the Old Barataria Road and a system of mid-nineteenth

century agricultural drainage ditches associated with the cultivation of sugarcane on Carter Plantation. The modern refuse loci include a small deposit, probably associated with the construction of the V-levee and canal; a modern trash dump; and, industrial and recreational debris across from the Estelle Pumping Station.

Additional archeological testing was performed at the prehistoric shell midden (Site 16JE218). Shovel and auger tests were placed across the site to delineate vertical and horizontal site boundaries. Six 1 x 1 m units also were excavated to investigate archeological deposits in the site. A prehistoric shell midden was present in five of these units, and prehistoric artifacts were recovered from all six. No aboriginal features were located, although part of a nineteenth or early twentieth century deposit was encountered in two of the units.

CHAPTER VIII

LABORATORY ANALYSIS

Introduction

A total of 382 artifacts were recovered during field investigations of the West Bank Hurricane Protection Project. Three hundred and seventeen artifacts, including 222 prehistoric ceramic sherds and 80 bone remains, were collected from Site 16JE218, a prehistoric shell midden. Fifty-four artifacts were recovered from Site 16JE217, Brown's Sawmill, a mid-twentieth century portable sawmill operation. From Loci Ba-1 and Ba-2, a total of 11 artifacts were collected (five and six respectively).

All artifacts were washed and sorted into material categories, catalogued, and encoded into a computerized site catalog to allow further data manipulation. The computerized site catalog is organized by category, functional group, type, and subtype. The first level (**category**), is based on the format used by the Louisiana Division of Archaeology. The second level (**functional group**), is based on historic classifications established by South (1977). The third and fourth levels (**type** and **subtype**), are based on diagnostic attributes. The resulting code identifies the artifact down to the subtype level and allows detailed pattern analysis. South's (1977) classifications do not apply to prehistoric remains. Loci Ba-1 and Ba-2, and Brown's Sawmill (16JE217) are discussed first; the results from 16JE218 follow.

Modern Refuse Loci

Five artifacts were collected from Locus Ba-1 (Table 3): one piece of concrete, a fragment of clear, unidentified bottle glass, one unidentified stone, and two pieces of charcoal. Based on the presence of modern glass and concrete, Ba-1 appears to date entirely from the recent twentieth century. This locus probably was created during the construction of the V-Levee and canal (Chapter VII).

Six artifacts were recovered from Locus Ba-2: two pieces of cinder, one piece of mortar, one *Rangia cuneata* shell, and two metal objects. One of the metal objects may be a fixture from a piece of furniture, e.g., a drawer pull or a lamp ornament. The other metal object was an aluminum doubloon, commemorating the seventy-fifth anniversary (1982) of Dixie Beer. The messages "REDEEM FOR A/FREE BEER/9:30 TO 5:00/MONDAY-FRIDAY/DIXIE BREWERY'S HOSPITALITY ROOM" and "DIXIE BEER/2401 TULANE AVE./NEW ORLEANS/75TH ANNIVERSARY" were noted on the obverse and reverse of the token. The latter message also displayed a picture of the Dixie Brewery. Loci Ba-2 is an area covered with modern refuse (Chapter VII).

Brown's Sawmill (16JE217)

Site 16JE217 has been identified as Brown's Sawmill, a portable sawmill operation that was established after World War II. The operation closed during the 1950s. A dry pond, a burned earth and refuse pile, a pile of sawdust, and an abandoned shell and gravel road made up the site's four components (Chapter VII).

Twenty-seven artifacts were recovered from the surface collection of 16JE217 (Table 3); 52 per cent (n=14) were samples of burned clay. Five pieces of glass also were collected, including one clear, machine-made, pharmaceutical bottle. The pharmaceutical bottle was embossed with the word "WILDROOT." Fike (1987) lists a hair tonic produced by a Buffalo, New York company. The product first appeared after 1912, and was advertised in 1916; the Illinois Glass Co. manufactured the bottle from 1916-1929 (Fike 1987). This bottle, however, did not match the description given by Fike. In 1980 - 1981, Wildroot became a product of the Colgate-Palmolive Company, 300 Park Ave, New York City (Fike 1987).

Table 3

 RECOVERED MATERIAL FROM SITE 16JE217 AND Loci Ba-1 AND Ba-2

	<u>Locus Ba-1</u>	<u>Locus Ba-2</u>	<u>16JE217 Surface Collection</u>	<u>16JE217 Shovel Tests</u>
<u>Ceramic Materials</u>				
Clay Pigeon			1	
<u>Construction Materials</u>				
Concrete	1			
Mortar		1		
<u>Faunal</u>				
Medium Mammal (Deer, pig, sheep, goat)			2	1
Large Mammal (Cow, ox, horse)				1
<u>Glass</u>				
Machine-Made Bottle				
Clear			2	
Pharmaceutical, clear			1	
Unidentified Bottle Glass				
Clear	1		2	1
<u>Metal</u>				
Bolt with nut				1
Cable			1	1
Chain with hook				1
Chisel			1	
Doubloon		1		
Faucet			1	
Furniture metal		1		
Tool handle			1	
<u>Nails</u>				
Wire				6
<u>Unidentified Metal Object</u>				
				1
<u>Shell</u>				
Rangia			1	
	1			

	<u>Locus Ba-1</u>	<u>Locus Ba-2</u>	<u>16JE217 Surface Collection</u>	<u>16JE217 Shovel Tests</u>
Stone				
Cinder		2		
Chert Pebble			1	2
Unidentified Stone	1			1
Wood				
Charred				1
Charcoal	2			
Other				
Burned Clay			14	9
TOTAL	5	6	27	27

Two clear machine-made bottle glass bases and two clear unidentified bottle glass fragments also were recovered. One base was embossed with the Owens-Illinois glass company mark that was in use between 1929 and 1954 (Toulouse 1971). The latter end of this date range corresponds with time of the sawmill operation.

Metal artifacts included one cable, a tool handle, one faucet, and a chisel. The chisel probably was used in the lumbering process, and many of the other metal artifacts could be associated with the various operations of the sawmill.

Two faunal remains recovered during surface collection were identified as medium mammals (e.g. deer, pig, sheep, goat). One is a mandible/maxilla fragment which showed evidence of sawing; the other is a mandible fragment. The remaining two artifacts recovered from 16JE217 included a piece of clay pigeon and a chert pebble.

Shovel testing at 16JE217 produced 27 artifacts (Table 3), of which metal artifacts comprised the largest material category. Six wire nails were collected. As a category, wire nails post date 1890 (Nelson 1963). Additionally, a metal cable, one bolt with an accompanying nut, and a chain with an attached hook were recovered. One unidentified metal object also was collected.

Two faunal remains were recovered during shovel testing at 16JE217. One was a fragment of a long bone belonging to a large-mammal (e.g. cow, ox, horse). A maxillary bone fragment from a medium mammal also was identified.

One *Rangia cuneata* shell, one clear unidentified bottle glass fragment, two chert pebbles, and one unidentified stone were collected. One charred wood fragment and nine burned clay samples also were recovered. In summary, the materials recovered from 16JE217 fall within the context of a mid-twentieth century portable sawmill operation.

Site 16JE218

Three hundred and seventeen artifacts and ecofacts were recovered from 16JE218. These include 222 prehistoric ceramic sherds, 80 faunal remains, one floral remain, and 14 historic artifacts. No lithic material was noted or collected from this site.

Of the 222 prehistoric sherds found, 172 (77.48 per cent) came from the six excavated units. Forty-three (19.37 per cent) were recovered during shovel testing, six (2.7 per cent) were found on the surface, and one (.45 per cent) came from an auger test. Of the total 222 sherds collected, 20 (9.0 per cent) were decorated, 137 (61.7 per cent) were plain, and six (2.7 per cent) had brushed surfaces. Fifty-seven (25.7 per cent of the collection) were spalled; the remaining 0.9 per cent were classified as fired clay pieces.

All of the prehistoric sherds were sorted by temper, portion of vessel, and surface finish. Sherds were analyzed using types previously identified by Phillips (1970). Brown (1979; 1984) and Giardino (1979; 1984) also were consulted. Undecorated sherd types included Baytown Plain var. *Addis* (n=5), Baytown Plain var. *Baytown* (n=55), Baytown Plain var. *Thomas* (n=1), and Baytown Plain var. *unspecified* (n=61). All but the Baytown plain var. *Thomas* sherds were clay tempered; the Baytown Plain var. *Thomas* was both sand and clay tempered.

Decorated ceramic sherds included Plaquemine Brushed var. *unspecified*, Churupa Punctated var. *Churupa* (n=1), Churupa Punctated var. *Thornton* (n=2), Coles Creek Incised var. *Coles Creek* (n=3), Coles Creek Incised var. *unspecified* (n=3), French Fork Incised var. *French Fork* (n=6), and French Fork Incised var. *unspecified* (n=1). All had clay tempering.

Those undecorated sherds for which types could not be positively identified, either because of their small size or poor condition were classified as unidentified plain (n=15) and unidentified brushed (n=3). Decorated, in this case punctated and incised, sherds that could not be typed were classified as unidentified

incised (n=3) and unidentified punctated (n=1). All but one of the unidentified decorated and undecorated sherds were clay tempered; one unidentified plain sherd contained evidence of minute shell tempering.

Baytown Plain varieties span the range of prehistory from the Marksville (Baytown Plain var. *Thomas*) to Coles Creek (Baytown Plain var. *Baytown*) to Mississippian and Contact periods (Baytown Plain var. *Addis*) (Phillips 1970). Plaquemine Brushed varieties date from Mississippian to Contact periods (Phillips 1970), and were common to the Plaquemine culture (Smith 1983). Churupa Punctated var. *Churupa* dates from the Marksville to "a good deal beyond" the Troyville period (Phillips 1970). Churupa Punctated var. *Thornton* dates from Middle Marksville, but has no definite termination date; however, it appears to have extended into the early Coles Creek period (Phillips 1970). Coles Creek Incised varieties were present from the beginning of the Baytown period to the middle of the Mississippian period (Phillips 1970). French Fork Incised var. *French Fork* has not been narrowly dated, but may have reached its zenith around the time of the Baytown Coles Creek period (Phillips 1970).

Surface Collection

Surface collection from 16JE218 produced one Coles Creek Incised var. *unspecified* rim, one unidentified plain rim, three Baytown Plain var. *unspecified* body sherds, and an unidentified plain body sherd. One auger test located at N130, E110 produced one Baytown Plain var. *unspecified* sherd.

Shovel Testing

Forty-three sherds were collected during shovel testing (Table 4); 37.2 per cent (n=16) were Baytown Plain var. *Baytown* body sherds. Baytown Plain var. *unspecified* sherds made up 27.9 per cent (n=12) of the collection, and included one rim. Six unidentified plain body sherds represented 14 per cent of the 43 sherds recovered. Two unidentified brushed body sherds (4.65 per cent) and one Plaquemine Brushed (2.3 per cent) body sherd were recovered, as were two Coles Creek var. *Coles Creek* rim sherds (4.65 per cent) and one unidentified punctated body sherd (2.3 per cent). The remaining three sherds were spalls.

When plotted, (Figure 17) sherd frequency clustered around shovel tests N125, E95 and N126.5, E95. This was the approximate center of the site. Twenty-three sherds were collected from these two shovel tests (Table 4); 19 (82.6 per cent) were plain, two (8.7 per cent) were unidentified brushed, and two (8.7 per cent) were spalls.

A fragment of clear bottle glass was found in shovel test N125, E95, and although no historic artifacts were recovered from shovel tests N131, E95 and N131, E97, both were dug in the area of historic disturbance. Conversely, no prehistoric sherds were found in shovel test N131, E96; however, a .32 caliber modern bullet was collected.

Test Unit Results

One hundred and seventy-two sherds were recovered from the six excavation units (Table 5). Unit N117, E93 contained 34 sherds; Unit N120, E103 had 33; six sherds were recovered from Unit N125, E108; 72 sherds were found in Unit N126, E96; Unit N130, E98 contained 15 sherds; and, 12 sherds were collected from Unit N131, E98. Prehistoric ceramic sherds found in Units N117, E93, N120, E103, N125, E108, and N126, E96 all derived from the same Stratum.

Stratum I, which contained Level 1, fell above the shell midden. Stratum II was the shell midden; Levels 2 and 3 represented the top and bottom halves respectively. Stratum III and Level 4 were located below the shell midden. Stratum IV and Level 5 were located below the shell midden. Units N130, E98 and N131, E98 were partially or wholly disturbed by historic intrusions. Therefore, sherds recovered from these units were not considered to be in situ.

Table 4

PREHISTORIC CERAMIC SHERD TYPES RECOVERED FROM SHOVEL TESTING AT 16JE218

Shovel Test	N110 E100	N117.5 E92.5	N125 E105	N125 E110	N125 E117.5	N125 E95	N126.5 E95	N131 E95	N131 E97	N132 E97	N135 E100	Total	%
Baytown Plain variety Baytown	5					6	5					16	37.2
Baytown Plain variety Unspecified			1	3	1	2		1	2	2		12	27.9
Unidentified Plain							6					6	14.0
Coles Creek Incised variety Coles Creek	2											2	4.65
Plaquemine Brushed variety Unspecified			1									1	2.3
Unidentified Brushed							2					2	4.65
Unidentified Punctated											1	1	2.3
Spalls		1					2					3	7.0
TOTAL	7	1	2	3	1	8	15	1	2	2	1	43	100.0

CERAMIC ARTIFACT DISTRIBUTION

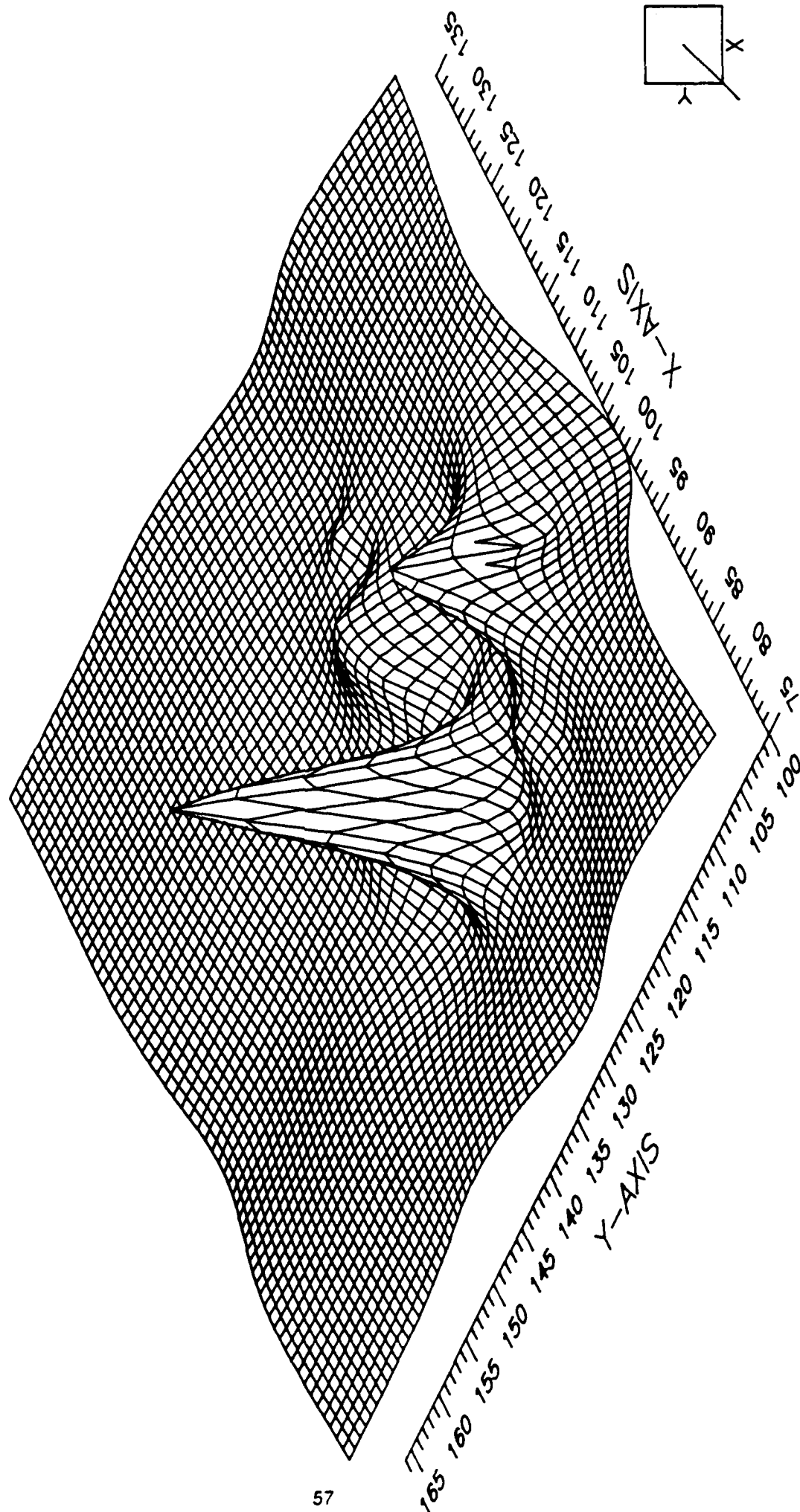


Figure 17. Distribution of ceramic artifacts recovered from shovel tests at 16JE218.

Table 5

 PREHISTORIC CERAMIC SHERD TYPES RECOVERED AT 16JE218 BY UNIT

UNIT N117E93

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Level 4</u>	<u>Total</u>	<u>%</u>
Baytown Plain <i>variety Baytown</i>		5	4		9	26.5
Baytown Plain <i>variety Thomas</i>			1		1	2.9
Baytown Plain <i>variety Unspecified</i>			4	1	5	14.7
Unidentified Plain	2				2	5.9
Plaquemine Brushed <i>variety Unspecified</i>	1	1			2	5.9
Spalls	1	4	10		15	44.1
TOTAL	4	10	19	1	34	100.0

PREHISTORIC CERAMIC SHERD TYPES RECOVERED AT 16JE218 BY UNIT

UNIT N120E103

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Level 4</u>	<u>Level 5</u>	<u>Total</u>	<u>%</u>
Baytown Plain variety <i>Addis</i>		4				4	12.12
Baytown Plain variety <i>Baytown</i>	1		3			4	12.12
Baytown Plain variety <i>Unspecified</i>				1		1	3.03
Unidentified Plain			1			1	3.03
Churupa Punctated variety <i>Churupa</i>			1			1	3.03
Churupa Punctated variety <i>Thornton</i>			2			2	6.06
Coles Creek Incised variety <i>Unspecified</i>					1	1	3.03
French Fork Incised variety <i>French Fork</i>			3	3		6	18.2
Unidentified Incised	1					1	3.03
Spalls		4	6			10	30.3
Fired Clay				2		2	6.06
TOTAL	2	8	16	6	1	33	100.0

PREHISTORIC CERAMIC SHERD TYPES RECOVERED AT 16JE218 BY UNIT

UNIT N125E108

	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>	<u>%</u>
Baytown Plain <i>variety Addis</i>	1		1	16.67
Baytown Plain <i>variety Baytown</i>	1		1	16.67
Baytown Plain <i>variety Unspecified</i>		3	3	50.0
Unidentified Brushed	1		1	16.67
TOTAL	3	3	6	100.0

UNIT N126E96

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Level 4</u>	<u>Total</u>	<u>%</u>
Baytown Plain <i>variety Baytown</i>		21			21	29.2
Baytown Plain <i>variety Unspecified</i>		22	3		25	34.7
Unidentified Plain			1	1	2	2.8
Coles Creek Incised <i>variety Unspecified</i>		1			1	1.4
Spalls	7	7	9		23	31.9
TOTAL	7	51	13	1	72	100.0

PREHISTORIC CERAMIC SHERD TYPES RECOVERED AT 16JE218 BY UNIT

UNIT N130E98

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Level 4</u>	<u>Total</u>	<u>%</u>
Baytown Plain <i>variety Baytown</i>			2	1	3	20.0
Baytown Plain <i>variety Unspecified</i>	1	1	8		10	66.7
Unidentified Plain	2				2	13.3
TOTAL	3	1	10	1	15	100.0

UNIT N131E98

	<u>Level 1</u>	<u>Level 3</u>	<u>Total</u>	<u>%</u>
Baytown Plain <i>variety Baytown</i>	1		1	8.33
Baytown Plain <i>variety Unspecified</i>	1		1	8.33
Coles Creek Incised <i>variety Coles Creek</i>		1	1	8.33
French Fork Incised <i>variety Unspecified</i>	1		1	8.33
Unidentified Incised	2		2	16.68
Spalls	6		6	50.0
TOTAL	11	1	12	100.0

Unit N117, E93 contained 50 per cent plain body sherds ($n=17$), including the sole Baytown Plain var. *Thomas* sherd. Two Plaquemine Brushed sherds made up 5.9 per cent of the collection, and the remaining 44.1 per cent ($n=15$) were spalled sherds. No decorated sherds were found in this unit. Two .22 caliber modern bullets were recovered from Level 1. One grape (*Vitis* sp.) seed was recovered from Level 4, and did not appear to be carbonized. *Vitis* sp. is a common Genus in the area (Chapter II).

Of the four units unaffected by historic disturbance, Unit N120, E130 contained the most ceramic types, as well as the highest frequency of decorated sherds ($n=11$). Decorated sherds included six (18.2 per cent) French Fork Incised var. *French Fork*, two (6.06 per cent) Churupa Punctated var. *Thornton* body sherds, and one (3.03 per cent) Churupa Punctated var. *Churupa* body sherd. One (3.03 per cent) Coles Creek Incised var. *unspecified* body sherd and one (3.03 per cent) unidentified incised body sherd also were recovered. Plain sherds made up 30.3 per cent of the total and included four (12.12 per cent) Baytown Plain var. *Addis* body sherds that may have originated from the same vessel. Of the four (12.12 per cent) Baytown Plain var. *Baytown* sherds collected, two were rim sherds. Ten (30.3 per cent) spalls were recovered of which one was a spalled rim sherd. Two fired clay pieces also were found.

No decorated sherds were collected from Unit N125, E108. Five (83.34 per cent) of the six sherds there were plain body sherds, including one Baytown Plain var. *Addis*. The sixth was an unidentified brushed body sherd (16.67 per cent). No prehistoric sherds were recovered from Level 1; however, Level 1 did produce a .32 caliber copper jacketed modern bullet.

Unit N126, E96 contained the highest sherd frequency ($n=72$) of all six units, but only one (1.4 per cent) decorated example, a Coles Creek Incised var. *unspecified* body sherd. The majority (66.6 per cent) of the sherds were plain, including one Baytown Plain var. *Baytown* rim sherd; the remaining 31.9 per cent ($n=23$) consisted of spalls. The high frequency of sherds from this unit repeated the pattern observed in the shovel test distribution, namely, that the highest sherd counts occurred approximately in the middle of the site. This central location may have been close to the original shoreline of Bayou des Familles (Chapter II).

A comparison of the Strata within Units N117, E93, N120, E103, N125, E108, and N126, E96 showed that Stratum II, the shell midden, contained the majority (84.8 per cent) of the sherds. The top half of the shell midden was represented by Level 2 and the bottom half by Level 3. A comparison, in turn, between these levels revealed that out of the 123 sherds recovered from the shell midden, 72 (58.5 per cent) were contained in Level 2. Level 3 contained 51 (41.5 per cent) sherds. Conversely, the faunal distribution showed a higher frequency of bone remains in the bottom half of the shell midden (see Faunal below).

Unit N130, E98 (Table 5) was partially disrupted by historic disturbance and therefore had a different stratigraphy than that described above. Levels 1 and 2 were considered to be disturbed. Level 3 represented all of the shell midden and Level 4 was below the shell midden. All fifteen sherds from Levels 1 through 4 were plain and included four Baytown Plain var. *unspecified* rims. One dark green mold blown glass fragment was recovered from Level 1.

Like Unit 120, E98, Unit N131, E98 (Table 5) had a high frequency of decorated sherds (33.3 per cent). However, Unit N131, E98 was located completely in the disturbed area, and the shell midden was absent in this unit. Levels 1 through 3 were considered to derive from the same stratum; however, artifacts were recovered only from Levels 1 and 3. Decorated body sherds included one (8.33 per cent) Coles Creek Incised var. *Coles Creek*, and one (8.33 per cent) French Fork Incised var. *unspecified*. Additionally, two (16.68 per cent) unidentified incised body sherds were collected. Two (16.7 per cent) of the body sherds were plain and the final six (50 per cent) were spalls. Level 1 also produced four fragments of dark green mold blown bottle glass, probably belonging to the same bottle that produced the glass fragment recovered in N130, E98. One .22 caliber modern lead bullet also was collected from Level 1. In Level 3, two more pieces of the dark green mold blown bottle glass were recovered.

In summary, the majority (61.7 per cent; $n=137$) of the sherds collected from 16JE218 were plain, of which 122 (89.1 per cent) were typed as Baytown Plain varieties. The two decorated varieties of Churupa Punctated extended in time from Marksville to at least the early Coles Creek period. Coles Creek Incised

varieties spanned from the beginning of Baytown to the middle of the Mississippian time period. French Fork Incised was thought to have occurred with the most frequency around the Baytown Coles Creek time period. Plaquemines Brushed commonly was made during Plaquemine times and its manufacture extended to the Contact period (Phillips 1970).

Because frequencies of the Baytown Plain variants at this site are undemonstrative of a singular chronological placement, and since Churupa Punctate, French Forked Incised, and Coles Creek Incised occurred throughout a range of cultural periods, none of these types serve as a diagnostic temporal indicator. However, the absence of Pontchartrain Check Stamped, "the most typical decorated ceramic of the Coles Creek period in the delta" (Brown 1984), and the presence of Plaquemine Brushed and of var. *Addis* sherds indicates a late Coles Creek Plaquemine placement for this site. Only six brushed sherds were recovered; three were classified as unidentified brushed.

Nine per cent of all the sherds collected from 16JE218 were decorated. Giardino (n.d.) found that in the upper levels of the Coquilles Site, 16JE37, located in Jean Lafitte National Historic Park, 7-16 per cent of all ceramic sherds excavated were decorated. These upper levels have been carbon dated to the Troyville time period (Giardino n.d.). A possible explanation given by Giardino for this frequency is that pottery made during Troyville times had designs concentrated at the neck of the vessel. Therefore, more of the body remained plain, producing a larger percentage of plain sherds when the vessels broke. When spalls and the fired clay from 16JE218 were excluded from the ratio of decorated versus undecorated sherds, the percentage increased to 13.9 per cent. This percentage also fell within the established range at the Coquille site for decorated versus undecorated sherds, but it is not clear if spalls were included in Giardino's comparisons.

Faunal Analysis

Eighty faunal remains were collected from 16JE218 (Table 6). All of the remains represent species common to the area (Chapter 2). These included 32 (40 percent) mammal bones, 20 reptile (25 per cent) bones, and six (7.5 per cent) fish bones. The remaining 22 fragments (27.5 per cent) were classified as unidentified bone. Identified mammal remains included rabbit (*Sylvilagus* sp.; n=1; 1.25 per cent), muskrat (*Ondatra zibethicus*; n=5; 6.25 per cent), and opossum (*Didelphis virginiana*; n=1; 1.25 per cent). Reptile remains were represented by turtle shell (n=20; 25.0 per cent). When the species of mammal could not be identified, remains were grouped in descriptive categories, i.e. medium and small mammal. The unidentified medium mammal bones, probably deer remains, constituted 7.5 per cent (n=6) of the collection, while unidentified small mammals (n=19) comprised 23.8 per cent.

Those elements that were identified included one rabbit bone, a right mandible, recovered from Level 4 of Unit N120, E103. Two maxillary fragments and three teeth of a muskrat were collected from Level 3 of Unit N125 E108. The one opossum bone came from Unit N117, E93, Level 3; it was a humerus bone. All recovered turtle carapace remains came from Unit N117, E93, as did five of the six fish bones. Also, two burned bones were collected from Unit N126, E96; one was unidentified, and the other was a small mammal bone. Mammal bones were found in all units.

The majority of the faunal remains (78.8 per cent) were recovered from Stratum III, the shell midden. A comparison of levels within this stratum showed that there were more bones (n=46; 73.0 per cent) in the bottom half than in the top (n=17; 27.0 per cent).

Forty-five percent of the identified faunal remains were from small mammals. Additionally, 35 per cent of the identified bone was turtle shell, indicating the use of riverine resources. When the six fish bones were included in the total of recovered aquatic life remains, the percentage jumped to 45 per cent. Thus, together small mammal and aquatic species comprised 90 per cent of the faunal collection.

The other faunal remain observed but not collected from 16JE218 was the *Rangia cuneata* shells of the shell midden. This brackish water clam was easy to collect. The clams may have been used as a protein supplement in the prehistoric diet, as well as a seasonal food, or emergency food (Byrd 1976).

Table 6

FAUNAL REMAINS FROM 16JE218

	<u>Synilagus</u> app. (rabbit)	<u>Ondatra</u> <u>Zibethicus</u> (muskrat) Bone/Tooth	<u>Didelphis</u> <u>virginiana</u> (opossum)	<u>Small</u> <u>Mammal</u> (rodents, rabbit, opossum) Bone/Tooth	<u>Medium</u> <u>Mammal</u> (deer, pig, sheep goat)	<u>Turtle</u> <u>Shell</u>	<u>Fish</u> <u>Bones</u>	<u>Unidentified</u>
Unit N117E93								
Level 2				3		8		3
Level 3			1	6		5	5	11
Level 4						6		
Unit N120E103	1			5	1			1
Level 3								
Level 4								
Unit N125E106				1	1	1		
Level 2		2						
Level 3		3						
Unit N126E96				1	1*			1*
Level 1					3			
Level 2					1			
Level 3					1		1	3
Unit N130E98				1				
Level 1								
Unit N131E98								3
Level 1								
TOTAL	1	2	1	17	2	20	6	22

*Burned.

CHAPTER IX

SUMMARY AND RECOMMENDATIONS

Summary

An archeological survey of a portion of the proposed West Bank Hurricane Protection Project located two archeological sites, two landscape features, and three modern refuse loci. Phase I/II testing showed that one site (16JE218) may satisfy one or more of the National Register criteria. The other site (Brown's Sawmill, 16JE217) was less than fifty years old and lacked substantive research potential. Neither the sawmill, the two landscape features, nor the three modern refuse loci possess the quality of significance as defined by the National Register criteria.

Brown's Sawmill (16JE217)

Brown's Sawmill (16JE217) is the remains of a post-World War II portable sawmill owned by Emmett D. Brown. It is located on the natural levee of Bayou des Familles levee, west of LA 45 (Figure 10). Both cypress and hardwoods were processed at this location. Four associated features were observed and recorded within this site. A 30 - 35 m diameter pond was located toward the west end of the site; a water pump on the rim of this pond protected the sawmill operation against fire. A burned sawdust pile, toward the northeast side of the site, marked the approximate location of the sawmill. A burned earth and refuse pile near the south end of the site contained mid-twentieth century lumbering debris and may represent the location of a small frame utility building. Finally, a shell and gravel road passed between the pond and the two piles. Because Brown's Sawmill is less than 50 years old and it is not of exceptional importance, it is not eligible for inclusion on the National Register. No additional archeological testing is recommended.

Site 16JE218

Site 16JE218 is a prehistoric shell midden located on the east bank of Bayou des Familles, adjacent to the V-levee canal. During Phase I testing of the site, 43 shovel tests, 12 auger tests, and six 1 x 1 m excavation units were placed across the site. This testing resulted in the delineation of both natural and cultural deposits. The site is circular and encompasses approximately 630 square meters. In general, three strata overlie the sterile subsoil. Stratum I, a 3 - 10 cm thick humus layer which overlies the shell midden, contains some shell and artifacts. Stratum II is a 10 - 14 cm thick shell midden deposit that contains pottery, faunal remains, and charcoal. The 5 - 10 cm thick Stratum III, which underlies the shell midden, contains some shell, pottery, faunal remains, and charcoal.

Site 16JE218 originally was situated on the bank of the Bayou des Familles. While the modern bayou is only 11 m wide, historically it was about 100 m wide (Kelley and Bryant 1986:4). This width would have placed 16JE218 at the water's edge, adjacent to marine resources and to riverine transportation.

The importance of mollusks, such as *Rangia cuneata*, in the aboriginal subsistence system has not been fully determined. While the quantity of clam shells present at shell middens such as 16JE218 could indicate that mollusks formed an integral component of aboriginal diets, some have suggested that shellfish played a comparatively minor role in the diet, since large quantities of clams must be harvested to provide a rather small quantity of meat; shellfish provide moderate nutritional and caloric value (Byrd 1976). Because of the well-preserved faunal assemblage that exists at 16JE218, further excavations would provide important data about aboriginal subsistence systems. Examination of both the faunal and shell subassemblages also would provide information about seasonality, important for understanding aboriginal life in the region.

This site may possess the quality of significance defined by the National Register criteria [36 CFR 60.4(d)]. Other than a small historic disturbance, the site is intact. It contains a moderate quantity of both prehistoric ceramic and faunal remains. Although no prehistoric features were identified in the six square

meters excavated, such features may be present and could be located with additional testing. While numerous prehistoric sites have been identified in the Barataria region, substantive excavations have occurred at very few, with the notable exception of the Coquilles Site (16JE37). The few sites which have been tested extensively are comparatively large habitation sites with one or more mounds. Consequently, further excavations at 16JE218 could provide important information about the prehistoric development of the Barataria region.

Louisiana's Comprehensive Archaeological Plan lists two important themes which are relevant to Site 16JE218: Troyville-Coles Creek Culture and Prehistoric Coastal Subsistence and Settlement Patterns (Smith et al. 1983:183). In addition, at least five of the ten research goals listed for the Troyville-Coles Creek culture could be addressed through further excavations at 16JE218:

1. To define the range of dates and phases for the Troyville-Coles Creek period;
2. To define the range of the artifact assemblage associated with this cultural unit;
3. To define the subsistence system for this culture;
4. To define the settlement system for Troyville-Coles Creek; and,
5. To excavate non-mound Troyville-Coles Creek hamlets, campsites, etc., to find out about non-ceremonial sites (Smith et al. 1983:190).

In short, further testing at 16JE218 would provide additional data about two significant regional themes, as well as at least five of the research goals established by the Louisiana Division of Archaeology.

The construction of the proposed West Bank Hurricane Protection Project will impact Site 16JE218 (Caroline Albright, personal communication 1989). Because the midden appears to be intact, and because it could supply important information relevant to our understanding of aboriginal adaptation to the environment of the Barataria region, the site appears to possess the quality of significance as defined by the National Register (36 CFR 60.4).

Landscape Features

Two landscape features were identified during the survey. One is a series of ca. 1866 - 1875 agricultural drainage ditches located west of Bayou des Familles, within the Carter Plantation (Figure 10). These ditches drained into a backditch adjacent to an old protection levee. The other landscape feature, located on the east side of the bayou, is the Old Barataria Road. The road, located on the natural levee of Bayou des Familles, was constructed in the eighteenth century, and continued in operation until the mid-nineteenth century. The locations of both of these features were recorded; a plan view of the drainage ditches also was drawn. Further recordation of these features would not contribute any substantive data about historic agriculture or transportation systems. These features do not possess the quality of significance as defined by the National Register (37 CFR 60.4). Therefore, no additional testing is recommended at these two features.

Modern Refuse Loci

Three modern refuse loci were located and recorded during the survey; all three were situated near the east side of the project area (Figure 1). Ba-1, a small shell concentration containing a few twentieth century artifacts, may have been formed during the construction of the V-levee or the adjacent canal. The canal was dug in the 1960s for oil exploration, and the levee subsequently was built along the south and east sides of the canal (Swanson 1988:303). Ba-2 is an extensive modern refuse dump dating from the late 1970s and early 1980s. Ba-7 is a combination of industrial and recreational debris located across the V-levee canal from the Estelle Pumping Station. It includes ca. 1960s debris associated with a nearby drill

hole, large iron water pipes from the drill hole or from the Estelle Pumping Station, and modern recreational refuse from a stable and a skeet range. All three of these loci are less than 50 years old, and none possesses the quality of significance as defined by the National Register (36 CFR 60.4). No additional testing at these refuse loci is warranted.

Recommendations

Of the two archeological sites, two landscape features, and three loci of modern refuse identified, only one (Site 16JE218) has the potential to be a significant cultural resource. This prehistoric shell midden may contain important archeological information [36 CFR 60.4(d)]. In addition, it may be associated with events that have contributed to the broad patterns of history [36 CFR 60.4(a)]. The following recommendations are made for this potentially significant archeological site.

First, additional excavations are indicated. The 16JE218 shell midden already has produced a sizeable ceramic and faunal assemblage. Estimates obtained from the excavation of six non-randomly placed excavation units suggest that the total prehistoric ceramic assemblage contained within the 630 square meter shell midden site may number 18,060 sherds ($X = 28.67$ ceramics/excavation unit; $630 \times 28.67 = 18,060$). Similarly, the number of faunal elements (excluding *Rangia cuneata* valves) associated with the aboriginal occupation of the site may number 8,400 specimens ($X = 13.333$ faunal specimens/excavation unit; $630 \times 13.333 = 8,400$). Representative information could be obtained by excavating 28 randomly selected 1 x 1 m excavation units. Such a sample would allow for an accurate characterization of the proportion of decorated vs. non-decorated ceramics and aquatic vs. non-aquatic faunal assemblages. Such an approach would allow an accurate portrayal of the two subassemblages at the 95 per cent confidence interval with an error of no more than 5 per cent. Additional estimates for the total numbers and proportions of differing ceramic types and faunal species could be gathered, as well. In addition, diversity indices should be calculated for comparison with other shell middens excavated in the southeastern U.S. region. A detailed site and contour map also should be compiled for Site 16JE218, and recovered shell and faunal remains should be examined for evidence of seasonality. Finally, several shell and carbon samples should be submitted for C-14 dating; this would provide the absolute dates necessary for dating the site.

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Caroline Albright, 1989

Percy Prestenbach, Sr., 1989

William J. Reed, Estelle Pumping Station, 1989

APPENDIX I
SCOPE OF WORK

REVISED SCOPE OF SERVICES

CULTURAL RESOURCES INVESTIGATIONS OF THE WEST BANK HURRICANE PROTECTION PROJECT, JEFFERSON PARISH, LA

1. Introduction

The U.S. Army Corps of Engineers, New Orleans District (NOD), plans to construct a hurricane protection system in Jefferson Parish, Louisiana, on the west bank of the Mississippi River (Attachment 1). The proposed project will protect the urbanized areas within Jefferson Parish between Westwego and Harvey Canal. The plan of improvement will consist of new and enlarged levees along the permitted alignment from Westwego area to the V-levee, along the existing V-levee alignment to the vicinity of Estelle Pumping Station, and along the existing Harvey Canal-Barataria Levee to Harvey Pumping Station. From this point, a floodwall will parallel Harvey Canal along Destrehan Avenue, tying into Harvey Lock.

This delivery order calls for a cultural resources investigation of the V-levee area (Attachment 2). The contract period for this work is 29 weeks.

2. Study Area

The project is located in southeastern Louisiana within Jefferson Parish on the Westbank of the Mississippi River. The area is generally bounded by the Harvey Canal to the east, Lake Cataouatche and Salvador to the west, the Mississippi River to the north and Barataria Bay to the south.

Attachment 2 delineates the area north of the proposed V-levee to be investigated under this delivery order. The proposed V-levee system abutts portions of the Jean Lafitte National Historical Park (JLNHP). Beginning west of Hwy 45, the study area extends east along the proposed V-levee and north to the Estelle Pumping station. The area to be surveyed begins at the toe of the existing levee going north and/or west across the existing drainage canal. The right of way is generally 1000 feet wide along the V-levee. Approximately 345 acres will be surveyed. Much of the study area consists of cypress-tupelo swamp with dense vegetation.

3. Background Information

NOD determined in 1986 that this project may have an effect on properties eligible for inclusion in the National Register of Historic Places (NRHP). No properties currently listed in or determined eligible for inclusion in the NRHP are presently recorded in the study area.

The V-levee area has the potential for containing significant cultural resources. The JLNHP has been the subject of several cultural resources investigations in previous years. Of particular interest to park officials is the Isleno settlement (A.D. 1779-1782), as well as prehistoric occupation of the area. It is possible that buried Isleno house structures and other associated historic sites are located in the study area. Recent investigations have just been completed in the area immediately south of the V-levee by Earth Search, Inc. for the park; these data (in draft) should give additional insight into the Isleno occupation of the Barataria. Although none are now reported, it is probable that prehistoric sites also exist in the study area. Many Coles Creek sites have been recorded along Bayou des Familles.

4. General Nature of the Work to be Performed.

One area of study which contains approximately 345 acres within Jefferson Parish, Louisiana, will be addressed under this delivery order. The investigation will utilize all previous cultural resources studies conducted in Jefferson Parish, to date, to the maximum extent possible. The work will be divided into three phases:

- (1) Literature Search and Records Review
- (2) Intensive Cultural Resources Survey of the V-levee and Site Assessment
- (3) Data Analysis and Report Preparation

5. Study Requirements

Phase 1: Literature Search and Records Review

The study will begin with research of available literature and records necessary to predict the nature of the resource base in the project area and refine the survey methodology. This background research will include a literature review, review of the geomorphology, and research in historical records to develop an historical overview. The purpose of the background research is to reconstruct the prehistoric and historic use of the study area and to develop an historic context to be used in further investigations. Historical maps will be consulted to determine the location of features and structures.

Phase 2: Intensive Cultural Resources Survey of the V-levee and Site Assessment

Upon completion of Phase 1, the contractor will conduct an intensive pedestrian survey augmented with systematic subsurface testing. No excavation will be permitted within any existing levee. It is suggested that the Contractor utilize a 20-meter transect width and a shovel-testing interval of 50 meters in an offset pattern. This testing regime should be conducted to the greatest extent possible depending on the density of tree cover. Shovel tests will be approximately 30x30 cm in the horizontal plane down to sterile subsoil. All excavated soil will be screened through 1/4 inch wire mesh. All shovel tests will be backfilled. This systematic procedure will be supplemented with judgmental shovel testing based upon the background research.

State site forms will be completed and state-assigned site numbers will be utilized for all archeological sites located by the survey. All sites located in the survey area will be mapped, photographed, and tested using shovel, auger, and limited controlled surface collection to determine depth of deposit, site boundaries, stratigraphy, cultural association, and possible activity areas. All cultural resources located by the survey will be evaluated against the National Register criteria contained in Title 36 CFR Part 60.4 and within the framework of the historic setting to assess the potential eligibility for inclusion in the National Register.

Further test excavations to determine site significance within the context of the Contractor's technical proposal will be conducted at a maximum of two sites which the Contractor, in consultation with and approval by the COR, deem possibly eligible for inclusion in the National Register. Should the survey locate more than two sites which require further testing to determine eligibility, such testing is beyond the scope of this delivery order. Test excavations will include excavation of two or more 1m x 2m test units per site as necessary. A backhoe may be utilized if needed. All test excavations will be backfilled. All profiles and features excavated will be mapped and photographed. Any pre-World War II standing structures located in the right-of-way will be recorded using state standing structure forms and a minimum of three clear black and white photographs. All such structures will be professionally evaluated to determine historical association and National Register eligibility. For structures located in the project right-of-way, the Contractor shall also address the archeological component of the site. No structures are anticipated.

A full assessment of the extent of previous adverse impacts to the unknown cultural resource base where levee construction has been completed should be attempted through field investigations.

Upon completion of the Phase 2 field work, a management summary succinctly reporting the results of the background research and the field survey shall be submitted to the COR within 2 weeks (see section 6).

Phase 3: Data Analysis and Report Preparation

All data from Phases 1 and 2 will be analyzed using currently acceptable scientific methodology. The Contractor shall catalogue all artifacts, samples, specimens, photographs, drawings, etc., utilizing the format currently employed by the Louisiana State Archeologist. The catalogue system will include site and provenience designations.

The Contractor shall present brief descriptions of the geomorphology, ecology, and cultural history of the area, as well as a summary of previous research. This information shall be integrated with the research results, survey results, and laboratory analyses to produce a graphically illustrated, scientifically acceptable draft report.

All cultural resources located by the survey within the study area will be evaluated against the NRHP criteria contained in Title 36 CFR Part 60.4 and within the framework of the historic setting to assess the potential eligibility for inclusion in the NRHP. The Contractor will classify each site as being *eligible*, *potentially eligible*, or *not eligible* for inclusion in the NRHP. The Contractor shall fully support all recommendations regarding site significance.

Project impacts on all cultural resources located by the survey will be assessed. For each resource recommended as eligible to the National Register and assessed to be impacted by the project, the Contractor shall evaluate and recommend mitigation alternatives.

6. Reports

Management Summary

Four copies of the management summary, one set of 7.5 minute quadrangle maps accurately delineating site locations, and one set of site forms and standing structure forms for all located cultural resources will be submitted to the COR within 2 weeks after completion of field work (9 weeks after delivery order award). The management summary will succinctly report the results of the field investigations, i.e. number, type, brief description and assessment of project impacts for all cultural resources located and preliminary assessments of site significance. If cultural resources are identified during the survey, the report will include a research design recommending courses of action to mitigate adverse impact to the resources. The summary report is not intended to be a lengthy interim report, but shall contain enough information to serve as a planning aid and a means of disseminating information immediately to the COR.

Monthly Progress Reports

Throughout the duration of the delivery order, one copy of a brief and concise statement of progress shall be submitted with and for the same period as the monthly billing voucher. These reports, which may be in letter form, should summarize all work performed, all information gained, or any problems encountered during the preceding month. A concise statement and graphic presentation of the Contractor's assessment of the monthly and cumulative percentage of total work completed by task shall be included. The monthly report should also note difficulties, if any, in meeting the contract schedule.

Draft and Final Reports

Five copies of the draft report integrating all phases of this investigation will be submitted to the COR for review and comment 13 weeks after date of delivery order award. The Contractor shall provide recommendations for mitigation for any sites recommended as eligible to the NRHP. As an appendix to the draft report, the Contractor shall submit the state site forms.

The written report shall follow the format set forth in MIL-STD-847A with the following exceptions: (1) separate, soft, durable, wrap-around covers will be used instead of self covers; (2) page size shall be 8-1/2 x 11 inches with 1-inch margins; (3) the reference format of American Antiquity will be used. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual dated January 1973.

The COR will provide all review comments to the Contractor within 8 weeks after receipt of the draft reports (21 weeks after delivery order award). Upon receipt of the review comments on the draft report, the Contractor shall incorporate or resolve all comments and submit one preliminary copy of the final report to the COR within 3 weeks (24 weeks after delivery order award). Upon approval of the preliminary final report by the COR, the Contractor will submit 30 copies and one reproducible master copy of the final report to the COR within 29 weeks after delivery order award. Included as an appendix to the Final Report will be a complete and accurate listing of cultural material and associated documentation recovered and/or generated.

In order to preclude vandalism, the final report shall not contain specific locations of archeological sites. Site specific information, including one set of project maps accurately delineating site locations, site forms, black and white photographs and maps, shall be included in an appendix separate from the main report.

7. References

The study will be conducted utilizing current professional standards and guidelines including, but not limited to:

- the National Park Service's draft standards entitled, "How to Apply the National Register Criteria for Evaluation," dated June 1, 1982;
- the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation as published in the Federal Register on September 29, 1983;
- Louisiana's Comprehensive Archeological Plan dated October 1, 1983; and
- The Advisory Council on Historic Preservation's regulation 36 CFR Part 800 entitled, "Protection of Historic Properties."
- The Advisory Council on Historic Preservation's Section 106, Update/3 entitled, "Manual of Mitigation Measures (1-10/111)" dated October 12, 1982.

8. Attachments (previously furnished)

1. Vicinity of proposed West Bank Hurricane Protection Project in Jefferson Parish, LA
2. Vicinity map showing study area (from Bertrandville 7.5' quadrangle)
3. West Jefferson Levee District Maps (May 1987) prepared by LADOTD Office of Public Works, District 02, Design Water Resources and Development Section (1:24000 Scale)

9. Disposal of Records and Artifacts

All records, photographs, artifacts, and other material data recovered under the terms of this delivery order shall be recorded and catalogued in a manner compatible with those systems utilized by the Louisiana SHPO and by State and Federal agencies which store archeological data. They shall be held and maintained by the Contractor until completion of the delivery order. Final disposition of the artifacts and records will be in accordance with applicable Federal and State laws. Unless otherwise specified, artifacts will be returned to the landowner or permanently housed with the Louisiana Division of Archaeology and Historic Preservation or in a repository selected by the State Archeologist. The Principal Investigator shall inform the COR in writing when the transfer of data has been completed and shall forward to the COR a catalogue of items entered into curation. The location of any notes, photographs or artifacts which are separated from the main collections from the project area which are used in data analyses will remain in private ownership. The Contractor shall be responsible for delivery of the analyzed archeological material to the individual landowners, the Louisiana SHPO's office, or any other repository designated by the Government following acceptance of the final report. All artifacts to be permanently curated will be cleaned, stabilized, labeled, catalogued on typed State curation forms, and placed in sturdy bags and boxes which are labeled with site, excavation unit or survey collection unit provenience.